



REVIEW ARTICLE

The Role of Nursing in Health Economics: A Narrative Review Study

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ABSTRACT

Background: Health economics, as a branch of economics, examines how resources are utilized in the healthcare sector. The primary objective of efficient healthcare systems is to improve patient outcomes while reducing treatment costs. Nurses, being the largest group of healthcare providers, play a significant role in health economics. Given the crucial role of nurses in the healthcare system and the necessity of enhancing the efficiency and effectiveness of health services, conducting precise and comprehensive research in the field of nursing and health economics is of particular importance.

Methods: This narrative review was conducted by searching the databases SID, PubMed, CINAHL, and Scopus, with the aim of exploring the roles of nurses in health economics. The keywords used included: resource allocation, allocation, cost-effectiveness, health economics, nursing, healthcare policy, decision-making participation, and their equivalents, using the operators AND and OR. Articles published between 2016 and 2024 were reviewed.

Results: Out of 83 retrieved articles, 19 were selected for final analysis based on the researcher's access to the full text and the relevance to the study topic. The collected materials were categorized thematically by the researchers into two main themes: "Nurses and Health Economics" and "Nursing and the Value of Health Services."

Conclusion: Nurses play a crucial role in enhancing the efficiency of healthcare systems and reducing costs by delivering high-quality and cost-effective care. They fulfill multiple roles in health economics through clinical interventions, resource management, policy participation, and specialized education—contributing to improved care quality and system performance. Further research is needed to better understand the long-term impact of nurses on economic decision-making and to provide effective strategies.

Keywords: Health economics, Nursing, Review study

Introduction

Health economics, a sub-discipline of economics, studies the allocation of resources within the healthcare sector (1). Efficient healthcare systems must simultaneously improve patient outcomes and reduce per capita costs (2). Healthcare systems in the Eastern Mediterranean Region (EMRO) face the challenge of rising healthcare expenditures (3).

In this context, nurses, as the largest group of healthcare providers, play a pivotal role in health economics (1).

Nursing and health economics are two interconnected fields that are gaining increasing attention in today's world. Given the significant portion of healthcare budgets allocated to nursing

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services, nurses have a high potential to not only participate in cost-reduction and quality-improvement processes but also to take a leading role in these efforts (4). As key providers of healthcare services, nurses make a significant contribution to improving public health and reducing healthcare costs by delivering high-quality and cost-effective care (5).

A 2021 report by the National Academies of Sciences, Engineering, and Medicine in the United States, titled "The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity," emphasizes the central role of nurses in promoting health and achieving equity within the healthcare system. The report underscores the necessity of fully leveraging the capacities and expertise of this group to efficiently respond to the growing needs of communities. This highlights the crucial importance of continuous investment in the education and professional development of nurses, given their key role in health economics (2).

Numerous studies in nursing have examined the impact of nursing interventions on clinical outcomes, while few have investigated the effect of these interventions on economic outcomes and the role of nurses in resource management and health economics policies (6). The shortage of nurses and the increasing costs of healthcare make comprehensive research on the economic value of nursing care essential (7).

Globally, the importance of the nursing role in managing costs and improving the quality of healthcare services is increasingly recognized. However, in Iran and the World Health Organization's EMRO, despite facing similar challenges of rising healthcare costs and the need for resource optimization, limited comprehensive reviews and quantitative studies have specifically analyzed the role of nursing in health economics. This research gap indicates that the economic dimensions of nursing services are less understood within the cultural and healthcare system context of this region.

Therefore, given the importance of nurses' roles in

the healthcare system and the necessity of improving the efficiency and effectiveness of health services, conducting comprehensive and precise research in the field of nursing and health economics is of significant importance. Such research can lead to the identification of factors affecting healthcare costs and the determination of nurses' roles in resource management and health economics policies.

Consequently, the present study aims to conduct a narrative review of the existing literature to provide a comprehensive examination of the role of nursing in health economics, thereby clarifying this role and providing a foundation for future research and evidence-based policy-making.

Materials and Methods

This narrative review was conducted with the aim of reviewing the roles of nurses in health economics. The study was granted an ethics code (IR.LUMS.REC.1404.038) from Lorestan University of Medical Sciences. A systematic search was performed on the following databases: SID, PubMed, CINAHL, and Scopus.

The keywords used were based on Medical Subject Headings (MeSH) and included: "Nursing," "Health Economics," "Resource Allocation," "Cost-Effectiveness Analysis," "Health Policy," and "Decision Making." These keywords were combined using the Boolean operators "AND" and "OR" for both English and Persian language articles.

To ensure the comprehensiveness and relevance of the selected articles, strict inclusion and exclusion criteria were developed. The review included research articles, review articles (including systematic, narrative, and integrative reviews), analytical reports, conceptual articles, and letters to the editor. The publication date was restricted to articles published between 2016 and 2024. Furthermore, articles were required to address the role of nurses in various dimensions of health economics, such as cost reduction, quality improvement, resource management, health policy-making, and value creation. Full-text access for

researchers was mandatory, and articles in either Persian or English were accepted.

Conversely, exclusion criteria included articles with topics unrelated to the economic dimensions of nurses' roles, such as purely clinical studies without reference to economic outcomes. Case reports and student dissertations were also excluded. Ultimately, articles for which the full text was unavailable were removed from the selection process.

The article selection process was meticulously conducted in three main stages to ensure the validity of the results. In the first stage, an initial search was carried out using the specified keywords in the designated databases. All retrieved articles were transferred to a reference management software (EndNote) to facilitate their organization. Following collection, the second stage involved duplicate removal and initial screening. During this stage, duplicate articles were eliminated, and then two researchers independently reviewed the titles and abstracts based on the inclusion and exclusion criteria. In the event of a disagreement between the two researchers regarding an article's inclusion or exclusion, a third researcher reviewed the case and made the final decision.

The final stage involved full-text review and selection. Articles chosen from the previous stage were studied in their entirety. Here, too, two researchers independently evaluated the quality and relevance of the full-text articles to the main objective of the study. Ultimately, articles that met all the necessary criteria were selected for final analysis. This screening process was performed schematically (inspired by the PRISMA framework) to ensure complete transparency in the article selection stages.

Data Analysis

Given the nature of a narrative review, where the primary goal is to synthesize and present a comprehensive overview of perspectives and findings, a rigorous quantitative quality assessment

of the articles using standardized scoring tools was not conducted in this study. However, all articles selected for final analysis were critically and qualitatively reviewed by the researchers. This qualitative review focused on three main axes: the credibility of the journal, the clarity and transparency of the methodology used (for research articles), and the direct and strong relevance of the article's content to the study's main objective (the role of nursing in various dimensions of health economics). This approach ensured that the extracted findings were based on credible and relevant evidence.

After the final selection of articles, key data—including the author's name, year of publication, country, study type, main findings, and the relevant area of the nurse's role in health economics—were extracted from each article. These data were then carefully analyzed using qualitative content analysis and conceptual categorization. The findings were grouped into thematic categories based on their similarities to provide coherence and a deeper analysis of the concepts related to the nurse's role in health economics.

Results

Initial searches yielded 83 articles (75 full-text articles and 8 abstracts) in English and Persian. After a thorough review, 25 articles met the inclusion criteria for the study. Ultimately, 6 of these were excluded due to a lack of full-text access, resulting in a final selection of 19 articles for review. The final selection consisted of 15 articles published in English-language journals and 4 articles from domestic journals, chosen based on the researchers' access to the full text and their strong relevance to the research topic (Figure 1).

It is worth noting that no contradictory results were found among the reviewed articles. To enhance the clarity and coherence of the findings, Table 1 provides details of the final selected articles, including the first author's name, publication year, country where the study was conducted, study type, and key findings related to health economics.

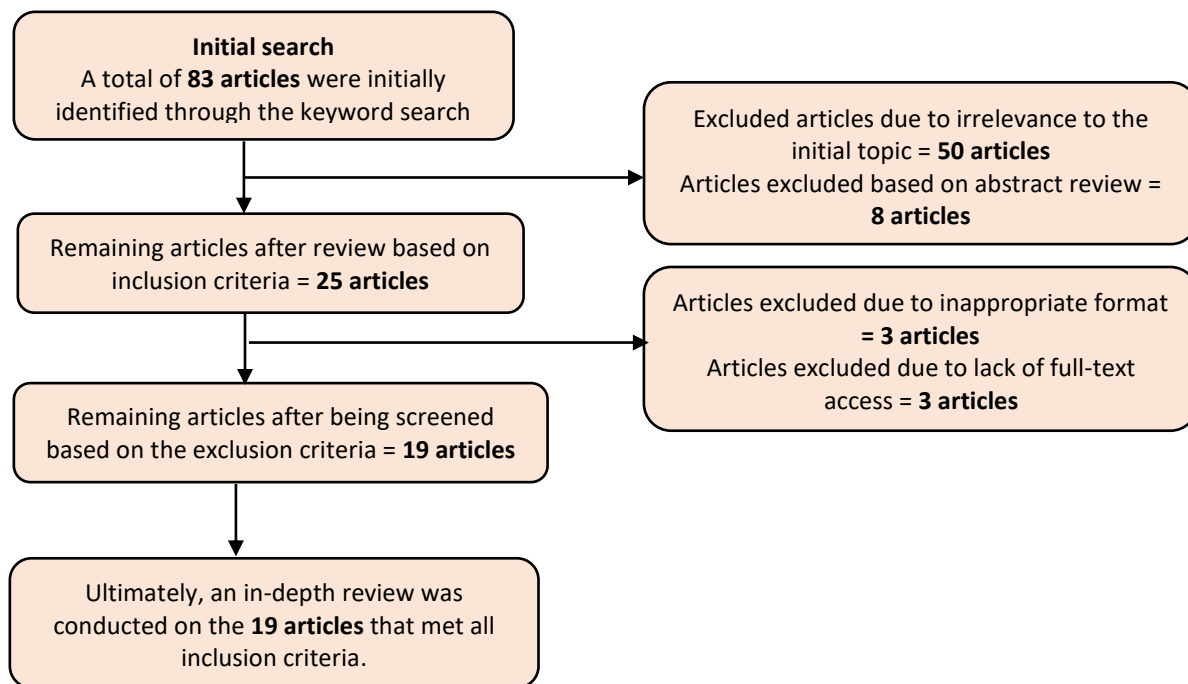


Figure 1. Article selection process

Table 1. Summary of the characteristics and key findings of selected articles

Author's name	Publication year	Country of study	Type of study	Key findings related to the field
Delattre	2019	France	Analytical	The reciprocal relationship between health and the labor market, emphasizing the need to align employment and health policies.
Kansal	2024	Multinational	Delphi study	Best practices for increasing cost-efficiency in adult intensive care units.
Davis	2021	Multinational	Systematic review	Cost reduction (through a decrease in hospital admissions and readmissions).
Griffin	2017	United States of America	Review	The role of nurses in improving satisfaction and reducing costs by managing and preventing chronic diseases
Chan	2018	Australia	Systematic review	The effectiveness of nurse-led care in the management of chronic diseases
Iovino	2024	Italy	Cost-effectiveness analysis	The role of nursing in self-care education as a cost-effective and efficient intervention.
Bahramnezhad	2019	Iran	Letter to the editor	The importance of investing in nurses' roles for economic growth and cost reduction.
Lopatina	2017	Canada	Methodological Review	Economic evaluation of advanced nursing roles.
Murphy	2021	Ireland	Quantitative retrospective	The economic costs of adverse events related to nursing and their impact on healthcare systems
Bastani	2020	Iran	Qualitative study	The role of nurses in improving productivity, managing resources (especially in times of shortage), and increasing the economic efficiency of the healthcare system

Author's name	Publication year	Country of study	Type of study	Key findings related to the field
Grundy	2016	United States of America	Qualitative study	Training and developing nurses' expertise in the procurement process to ensure safe care, increase effectiveness, and reduce costs.
Fernández	2022	Chile	Review	The role of nurses in public health policy-making to improve health policies and systems
Fetouh	2023	Iran	Cross-sectional analytical	Nurses' participation in decision-making related to their work to increase efficiency and effectiveness.
Hajizadeh	2022	Iran	Qualitative	Strengthening the capacity of nursing managers to participate in health policy-making to develop effective health policies.
Askari	2024	Iran	Analytical	The impact of payments on the quality of nursing care and cost reduction
Paknejad Rizi	2022	Iran	Systematic review	Payment policies and the improvement of health workforce performance
Brownie	2018	Australia and the United Kingdom	Review	Nursing development contributes to health promotion, gender equality, and economic growth.
Bartakova	2022	Switzerland	Cost-effectiveness analysis	Reducing hospitalizations while economically justifying the additional costs.
Ghadirian	2018	Iran	Letter to the editor	The role of nurses in influencing the quality (reducing complications, improving satisfaction), access (care coordination, reducing readmissions), and ultimately the value (more health for less cost) of healthcare services.

The collected information was thematically categorized by the researchers into two main sections: "Nursing and Health Economics" and "Nursing and the Value of Healthcare Services," which are detailed below.

Nursing and Health Economics

Nursing interventions can have a significant impact on reducing healthcare costs (8). Kansal (2024) and Davis (2021) (9,10). stated that specialized nursing care in intensive care units leads to substantial cost savings by improving patient outcomes and reducing the length of stay . This is especially crucial for chronic diseases, which are the leading cause of preventable death and disability globally, and whose prevalence and associated costs are rising. Nurses play a vital role in managing chronic diseases and are well-positioned to optimize the planning and provision of healthcare resources in primary care (11).

Chan et al (12) (2018) noted that with the increasing burden of chronic and age-related illnesses and a rapidly growing number of patients receiving outpatient care, nurse-led clinics have been proposed as a solution. This approach helps manage the rising demand on the healthcare system by reducing wait times, resource use, and costs while maintaining patient safety and satisfaction. Furthermore, studies by Iovino (2024) (13,14) and Bahramnejad (2019) showed that nurses, as key promoters and educators of preventative self-care, play an important role in reducing disease-related costs .

In a 2017 study, Lopatina et al (15) found that professional nurses played a role in both complementary and alternative care models, depending on patient needs and the healthcare system's structure. In complementary models, they provided services that enhanced existing care. In alternative models, their goal was to reduce costs

or compensate for workforce shortages while maintaining or improving the quality of care .

The findings indicate that nursing interventions significantly improve healthcare's economic outcomes. Murphy (2021) (16) found that complications stemming from nursing interventions (including hospital-acquired urinary tract infections, pressure ulcers, deep vein thrombosis, and surgical site infections) incur considerable costs for hospitals. An insufficient number of nurses leads to an increase in these complications. Furthermore, nursing errors lead to longer hospital stays and higher costs due to adverse effects on patients.

Nurses are not only crucial in providing direct care but also in the optimal management of resources. For instance, Bastani et al (17) (2020) demonstrated that nurses' proper use of equipment and consumables was effective in reducing hospital costs . Grundy (2016) (18) stated that to ensure safe, high-quality, and cost-effective care, it is essential to foster clinical expertise in nurses and integrate equipment training into the procurement process to prevent hidden costs and a decline in quality .

Nursing and the value of healthcare services

As a core component of the healthcare system, nursing plays a fundamental role in promoting public health and delivering high-quality services. The value of healthcare services typically refers to the physical health or sense of well-being achieved relative to the costs incurred. In other words, providing effective services while maintaining economic balance is crucial. In this regard, nurses, with their knowledge and experience, have taken an active role at the forefront of healthcare and in policy-making related to health economics. This important point was highlighted in studies by Fernández (2022) and Fatoq (2023) (19,20).

Nurses' involvement in health policy committees has led to the development of more economically effective policies. Hajizadeh et al (21) (2022) reported that nurses' participation in policy formulation resulted in improved care quality and

reduced costs. While improving nursing care quality through better working conditions or increased staffing can be costly, it ultimately leads to better patient outcomes and more favorable financial performance. Studies by Askari (2024) and Paknejad (2022) (22,23) made this point and offered suggestions for examining nurses' compensation and its impact on care quality. Consistent payment to nurses enhanced the quality of care, improved patient outcomes, and had positive financial implications for the healthcare system .

Governments are increasingly viewing the nursing workforce as a means to address health needs, provide cost-effective care, and improve health outcomes. The nursing role in primary prevention, delivering primary care, ensuring cost-effectiveness, and boosting self-efficacy is vital. In a 2018 study, Brownie et al (24) found that increased patient satisfaction, improved lifestyles, higher activity levels, and reduced readmissions all contributed to better health economics. Therefore, investing in nursing education has greater and more positive economic effects than providing healthcare services for treatment .

Given the growing importance of economic issues in healthcare, providing health economics education for nurses seems essential. In a 2022 study by Bartakova et al (25), the results showed that including health economics courses in nursing curricula increased nurses' awareness and ability to make cost-effective decisions. Finally, Ghadirian et al (26) (2018) reported that optimal management of nursing staff working hours led to a reduction of 1.5 million hospital days, a decrease of 60,000 adverse events, and a 0.5% saving in treatment costs .

Discussion

The findings of this systematic review indicate that nurses contribute to improving the efficiency and effectiveness of healthcare systems and reducing healthcare costs by providing high-quality, cost-effective care. This comprehensive review demonstrates that nurses play a vital and

multidimensional role in health economics. Through effective clinical interventions, efficient resource management, participation in policymaking, and specialized training in health economics, nurses can significantly contribute to improving economic efficiency and the quality of healthcare.

Although studies address various outcomes of nursing care, the number of articles that directly and quantitatively examine the economic impact of specific nursing roles or interventions is limited. Many economic relationships may have been reported indirectly (e.g., through a reduction in length of stay or complications), making a direct interpretation of the economic impact of nursing difficult. Furthermore, the existing evidence has primarily focused on some traditional or hospital-based nursing roles, with the emerging or specialized roles of nurses in health economics being less studied.

There are also challenges for nurses in playing their role in health economics. One of the biggest challenges for nurses is the increasing pressure to reduce costs without compromising the quality and safety of patient care. However, management decisions and policymaking based on economic savings often lead to a reduction in the nurse-to-patient ratio, increased workload, and less time allocated to each patient (27). Numerous studies have shown that inadequate nursing staff levels are associated with an increase in medical errors, hospital-acquired infections, length of stay, and even patient mortality (28,29). In these situations, nurses face an ethical and professional dilemma of how to provide safe and effective care with fewer resources. This constant pressure also contributes to nurse burnout, which in itself imposes significant indirect costs on the system, such as reduced productivity and increased turnover (30).

Moreover, the results of this review showed that while the training of nurses is crucial, their efficiency and willingness to provide services are of particular economic importance due to the significant costs of training nursing staff. Since training more nursing staff will not necessarily

solve the shortage problem, factors affecting their willingness to work must be considered (31,32).

To better understand and manage the economic role of nursing, there is a need for accurate, comprehensive, and interconnected data on nursing activities, consumed resources (such as nurse time), and the clinical and economic outcomes associated with these activities. Nevertheless, the need for more extensive research in this area is felt to gain a more comprehensive understanding of the long-term impact of nurses' participation in health economic decisions and to provide effective strategies for improving this participation.

To strengthen the role of nursing in health economics, it is suggested that cost-effectiveness and cost-benefit studies on nursing interventions in various settings (hospital, community, primary care, and mental health) be conducted, focusing on the direct measurement of financial savings and health outcomes, and employing sensitivity analysis to increase the robustness of the results. Furthermore, the development and standardization of tools to measure the economic outcomes related to nursing care, including indirect outcomes such as a reduction in lost workdays or an improvement in quality of life, are essential for a better estimation of their monetary value.

Emphasis on the economic evaluation of advanced nursing roles (such as clinical nurse specialists and consultants) and the role of nurses in digital health and telenursing, especially in the management of chronic diseases and prevention, is also important, as these areas have high potential for reducing costs and increasing access to services. Additionally, qualitative and quantitative studies are needed to identify structural and policy factors that hinder the full economic role of nurses (such as payment policies or staff shortages) to provide practical policy recommendations for overcoming these challenges.

It is also crucial to examine the economic impact of increasing the nurse-to-patient ratio and improving nurses' working conditions on patient outcomes, care quality, and workforce

productivity, and to convert these impacts into monetary value for decision-makers. Finally, it is suggested that health economics topics, including economic evaluation and resource management, be more deeply integrated into nursing education curricula at all levels. This approach will help nurses become more informed decision-makers regarding resource allocation and the provision of cost-effective care.

Conclusion

In conclusion, this review shows that nursing interventions in various sectors, including critical care, chronic disease management, and primary and preventive care, lead to direct and indirect cost reductions. By improving clinical outcomes, reducing length of stay and complications, promoting self-care, and efficiently managing resources, nurses decrease the financial burden on the healthcare system and increase economic efficiency.

Ethical considerations

This study is a review of the literature, and therefore, no direct involvement of human subjects or animals was required. However, the study was granted an ethics code (IR.LUMS.REC.1404.038) from Lorestan University of Medical Sciences.

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Authors' Contributions

F.M, T.T and Kh.H contributed to the design of the study; F.M collected the data; T.T and Kh.H analyzed and interpreted the data; F.M wrote the first draft of the manuscript; T.T reviewed the manuscript; and Kh.H critically revised the manuscript and acted as corresponding author. All authors read and approved the submitted version.

Conflict of interests

The authors declared no conflict of interests.

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References

1. Algharibi EDA, Fadel BA, Al-Hanawi MK. Assessment of Knowledge of Health Economics among Healthcare Professionals in the Kingdom of Saudi Arabia: A Cross-Sectional Study. *Healthcare* (Basel). 2024;12(2):185. DOI: 10.3390/healthcare12020185
2. Walewska-Zielecka B, Religioni U, Soszyński P, Wojtkowski K. Evidence-Based Care Reduces Unnecessary Medical Procedures and Healthcare Costs in the Outpatient Setting. *Value Health Reg Issues*. 2021;25:23-28. DOI: 10.1016/j.vhri.2020.07.577
3. Ahmadi AM, Assari-Arani A, Meskarpour-Amiri M. Inequality of health spending and public health outcome in countries of the WHO's Eastern Mediterranean Regional Office (EMRO). *International Journal of Travel Medicine and Global Health*. 2015;3(4):137-141. DOI: 10.20286/IJTMGH-030479
4. Guan Y, Ru N, Kang R, Jia X, Xu T, Meng Z. A Systematic Review of Economic Evaluations in Clinical Nursing Practices. *Journal of Nursing Management*. 2024;2024(1):9939254. DOI: 10.1155/2024/9939254
5. DONABEDIAN A. Evaluating the Quality of Medical Care. *The Milbank Quarterly*. 2005;83(4):691-729. DOI: 10.1111/j.1468-0009.2005.00397.x
6. Aiken LH, Sermeus W, Van den Heede K, Sloane DM, Busse R, McKee M, et al. Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *Bmj*. 2012;344:e1717. DOI: 10.1136/bmj.e1717
7. Dall TM, Chen YJ, Furst Seifert R, Maddox PJ, Hogan PF. The Economic Value of Professional Nursing. *Medical Care*. 2009;47(1):97-104. DOI: 10.1097/MLR.0b013e3181844da8
8. Delattre E, Moussa RK, Sabatier M. Health condition and job status interactions: econometric evidence of causality from a French longitudinal survey. *Health Economics Review*. 2019;9(1):3. DOI: 10.1186/s13561-019-0220-3
9. Kansal A, Latour JM, See KC, Rai S, Cecconi M, Britto

- C, et al. Correction to: Interventions to promote cost-effectiveness in adult intensive care units: consensus statement and considerations for best practice from a multidisciplinary and multinational eDelphi study. *Crit Care*. 2024;28(1):121. DOI: 10.1186/s13054-023-04766-2
10. Davis KM, Eckert MC, Hutchinson A, Harmon J, Sharplin G, Shakib S, et al. Effectiveness of nurse-led services for people with chronic disease in achieving an outcome of continuity of care at the primary-secondary healthcare interface: A quantitative systematic review. *International Journal of Nursing Studies*. 2021;121:103986. DOI: 10.1016/j.ijnurstu.2021.103986
 11. Griffin CD. A Primary Care Nursing Perspective on Chronic Disease Prevention and Management. *Dela J Public Health*. 2017;3(1):78-83. DOI: 10.32481/djph.2017.03.011
 12. Chan RJ, Marx W, Bradford N, Gordon L, Bonner A, Douglas C, et al. Clinical and economic outcomes of nurse-led services in the ambulatory care setting: A systematic review. *International Journal of Nursing Studies*. 2018;81:61-80. DOI: 10.1016/j.ijnurstu.2018.02.002
 13. Iovino P, D'Angelo D, Vellone E, Ruggeri M. A cost-effectiveness analysis of community nurse-led self-care education for heart failure patients. *Collegian*. 2024;31(4):258-266. DOI: 10.1016/j.colegn.2024.05.003
 14. Bahramnezhad F, Asgari P. Nurses as the Leading Voices: Health is a Human Right. *Scientific Journal of Nursing, Midwifery and Paramedical Faculty*. 2019;5(1):1-5.
 15. Lopatina E, Donald F, DiCenso A, Martin-Misener R, Kilpatrick K, Bryant-Lukosius D, et al. Economic evaluation of nurse practitioner and clinical nurse specialist roles: A methodological review. *Int J Nurs Stud*. 2017;72:71-82. DOI: 10.1016/j.ijnurstu.2017.04.012
 16. Murphy A, Griffiths P, Duffield C, Brady NM, Scott AP, Ball J, et al. Estimating the economic cost of nurse sensitive adverse events amongst patients in medical and surgical settings. *J Adv Nurs*. 2021;77(8):3379-3388. DOI: 10.1111/jan.14860
 17. Bastani P, Hakimzadeh SM, Panahi S, Bahrami MA. The Role of Nurses in the Covid-19 pandemic: A health policy approach in a dead-end. *Health Management & Information Science*. 2020;7(3):137-141.
 18. Grundy Q. "Whether something cool is good enough": The role of evidence, sales representatives and nurses' expertise in hospital purchasing decisions. *Social Science & Medicine*. 2016;165:82-91. DOI: 10.1016/j.socscimed.2016.07.042
 19. Fernández MAS, Parra-Giordano D, Gutiérrez TM. Nursing participation in public policies, why is it important? Integrative review of the literature. *Enfermería Global*. 2022;21(1):607-624. DOI: 10.6018/eglobal.455361
 20. M. Fetouh F, Fakhry SF, Abd-Elhamid LA. Factors Affecting Decisional Involvement among Staff Nurse. *Egyptian Journal of Health Care*. 2023;14(1):380-391.
 21. Hajizadeh A, Zamanzadeh V, Khodayari-Zarnaq R. Exploration of knowledge, attitudes, and perceived benefits towards nurse managers' participation in the health policy-making process: a qualitative thematic analysis study. *J Res Nurs*. 2022;27(6):560-571. DOI: 10.1177/17449871221080719
 22. Askari MS, Rabeti M, Bayati M. Health economics perspectives of nursing services tariff setting in Islamic Republic of Iran. *East Mediterr Health J*. 2024;30(9):601-602. DOI: 10.26719/2024.30.9.601
 23. Paknejad Rizi SM, Torabi F, Jafari Pavarsi H. Challenges of Performance-Based Payment Methods in Health Care System: A Systematic Review. *Evidence Based Health Policy, Management & Economics*. 2022;6(4):285-297. DOI: 10.18502/jebhpme.v6i4.11541
 24. Brownie SM. The economic impact of nursing. *Journal of Clinical Nursing*. 2018;27(21-22):3825-3826. DOI: 10.1111/jocn.14182
 25. Bartakova J, Zúñiga F, Guerbaai RA, Basinska K, Brunkert T, Simon M, et al. Health economic evaluation of a nurse-led care model from the nursing home perspective focusing on residents' hospitalisations. *BMC Geriatrics*. 2022;22(1):496. DOI: 10.1186/s12877-022-03182-5
 26. Ghadirian F, Vahedian-Azimi A, Ebadi A. Value-based care and the necessity of economic evaluation of nursing services. *Journal of Hayat*. 2018;24(3):197-203.
 27. Needleman J. Nursing skill mix and patient outcomes. *BMJ Qual Saf*. 2017;26(7):525-528. DOI: 10.1136/bmjqs-2016-006197

28. Aiken LH, Sloane DM, Bruyneel L, Van den Heede K, Griffiths P, Busse R, et al. Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study. *Lancet*. 2014; 383(9931):1824-30. DOI: 10.1016/S0140-6736(13) 62631-8
29. Kane RL, Shamliyan TA, Mueller C, Duval S, Wilt TJ. The association of registered nurse staffing levels and patient outcomes: systematic review and meta-analysis. *Med Care*. 2007;45(12):1195-204. DOI: 10.1097/MLR.0b013e3181468ca3
30. Dall'Ora C, Ball J, Reinius M, Griffiths P. Burnout in nursing: a theoretical review. *Human Resources for Health*. 2020;18(1):41. DOI: 10.1186/s12960-020-00469-9
31. Aiken LH, Clarke SP, Sloane DM. Hospital staffing, organization, and quality of care: cross-national findings. *Int J Qual Health Care*. 2002;14(1):5-13. DOI: 10.1067/mno.2002.126696
32. Fazel N, Yazdi Moghadam H, Elhani F, Pejhan A, Koshan M, Ghasemi MR, et al. The nursing experiences regarding to clinical education in emergency department: a qualitative content analysis in 2012. *Journal of Sabzevar University of Medical Sciences*. 2017;24(2):97-106.