



Evaluating the Economic Impact of Advanced Nursing Degrees on Healthcare Institutions and Workforce Dynamics in Ghana

Buckman Boateng,^{1*} Safura Seidu,² Ernest Kansangabata,³ Bismarck Asare⁴

¹Principal Health Tutor, Nursing and Midwifery Training College, 37 Military Hospital, Accra.

²Principal Health Tutor, Nursing and Midwifery Training College, Tamale

³Principal Health Tutor, CHNTC Jirapa

Deputy Chief Health Tutor, Nursing and Midwifery Training College, 37 Military Hospital

*Corresponding author's email: nbyacad@gmail.com

Abstract:

Purpose: This paper evaluates the potential economic impact of advanced nursing degrees on healthcare institutions and workforce dynamics in Ghana.

Method: A comprehensive literature review was conducted, analyzing international studies and applying economic theories to the Ghanaian context.

Findings: Advanced nursing degrees have the potential to improve cost-effectiveness, enhance quality of care, and reduce healthcare costs in Ghana. They may also positively impact workforce dynamics by improving job satisfaction, reducing brain drain, and enhancing interprofessional collaboration. However, implementation challenges include regulatory barriers, cultural resistance, and the need for substantial investment in education.

Conclusion: While advanced nursing degrees show promise for economic benefits in Ghana's healthcare system, their successful implementation requires careful planning, policy adjustments, and stakeholder support.

Recommendations: Ghana should invest in advanced nursing education, develop clear regulatory frameworks, and conduct Ghana-specific research to guide implementation.

Significance: This paper contributes to the limited literature on the economic impact of advanced nursing degrees in low- and middle-income countries, providing valuable insights for policymakers and healthcare leaders in Ghana and similar contexts.

Keywords: Advanced nursing degrees, economic impact, healthcare workforce, Ghana

Cite this article as: Boateng, B., Safura Seidu, S., Kansangabata, E., & Asare, B. (2024). Evaluating the Economic Impact of Advanced Nursing Degrees on Healthcare Institutions and Workforce Dynamics in Ghana. Ghana Journal of Nursing and Midwifery (GJNMID), 2024 (3). <https://doi.org/10.69600/gjnmid.2024.v01.i03.82-112>



Introduction:

The healthcare system in Ghana, like many low- and middle-income countries, faces significant challenges including shortages of healthcare professionals, limited access to care, and rising healthcare costs. These challenges are particularly acute in rural and underserved areas, where the scarcity of physicians often results in inadequate healthcare coverage (Asamani et al., 2020). In this context, the potential role of advanced nursing degrees in addressing these challenges and improving the overall efficiency and effectiveness of the healthcare system warrants careful consideration.

Advanced nursing degrees, which typically include Master's and Doctoral level education, prepare nurses for expanded roles such as advanced practice nursing, nursing leadership, and nursing education. These roles have the potential to bridge critical gaps in the healthcare system, improve the quality of care, and potentially reduce healthcare costs (Newhouse et al., 2011). However, the economic impact of introducing such degrees and roles in the Ghanaian context has not been thoroughly explored.

This paper aims to evaluate the potential economic impact of advanced nursing degrees on healthcare institutions and workforce dynamics in Ghana. By drawing on international literature and applying economic theories to the Ghanaian context, this study seeks to provide a comprehensive analysis that can inform policy decisions and guide future research.

The relevance of this paper lies in its potential to address critical healthcare challenges in Ghana through a cost-effective and sustainable approach. As Ghana strives to achieve universal health coverage and improve health outcomes, understanding the economic implications of investing in advanced nursing education is crucial. This paper makes a strong case for considering advanced nursing degrees as a strategic investment in Ghana's healthcare system, potentially yielding significant economic benefits while addressing workforce shortages and improving access to quality care.

The specific objectives of this paper are:

1. To analyze the potential direct and indirect economic impacts of advanced nursing degrees on Ghana's healthcare system.
2. To examine the implications of advanced nursing degrees on workforce dynamics in Ghana's healthcare sector.
3. To identify key challenges and considerations for implementing advanced nursing degrees in Ghana and propose policy recommendations.

By addressing these objectives, this paper aims to contribute valuable insights to the ongoing discourse on healthcare workforce development and economic efficiency in Ghana's healthcare system.



Significance of the Paper:

This paper makes a significant contribution to the nursing, midwifery, and health literature, particularly in the context of low- and middle-income countries. While there is a growing body of research on the impact of advanced nursing roles in high-income countries, there is limited literature exploring the economic implications of such roles in settings like Ghana. This paper bridges this gap by applying international findings and economic theories to the Ghanaian context, providing a comprehensive analysis of the potential economic impacts of advanced nursing degrees.

The findings of this study have important implications for policy-making in Ghana and similar countries. By highlighting the potential economic benefits and challenges associated with implementing advanced nursing degrees, this paper provides valuable insights for healthcare leaders and policymakers considering strategies to improve healthcare efficiency and access.

Furthermore, this paper contributes to the broader discussion on task-shifting and role expansion in healthcare, offering a nuanced analysis of how these strategies might be applied in the Ghanaian context. It also underscores the importance of context-specific research in understanding the economic implications of healthcare workforce interventions.

Overall, this paper serves as a foundation for future research on the economic impact of advanced nursing education in low- and middle-income countries, potentially influencing policy decisions and contributing to the development of more efficient and effective healthcare systems.

Results & Findings

Current State of Nursing Education and Workforce in Ghana

The nursing education system in Ghana has undergone significant transformations since the country's independence in 1957. Initially, nursing education was primarily focused on hospital-based training programmes, but it has evolved to include diploma, bachelor's, and postgraduate degree programmes (Opare & Mill, 2000). This evolution reflects a global trend towards higher education standards in nursing, aimed at improving the quality of care and addressing the complex healthcare needs of the population.

Currently, nursing education in Ghana is offered at various levels, including certificate, diploma, bachelor's, and postgraduate degrees. The nursing programs are provided by both public and private institutions, including universities, polytechnics, and nursing training colleges (Bell et al., 2013). The Nursing and Midwifery Council of Ghana (N&MC) is responsible for regulating nursing education and practice in the country, ensuring that educational programmes meet the required standards and that nurses are adequately prepared for their roles.

Despite the progress made in nursing education, Ghana faces several challenges in this area. One of the primary issues is the limited capacity of nursing schools to accommodate the growing demand for nursing



education. This has led to a shortage of qualified nurses and midwives in the country (Asamani et al., 2020). Additionally, there are concerns about the quality of education provided in some institutions, particularly in terms of clinical training and access to modern healthcare technologies.

The curriculum for nursing education in Ghana has been criticized for being overly theoretical and not sufficiently aligned with the practical realities of healthcare delivery in the country. Salisu et al. (2020) found that nurses and midwives in Ghana expressed concerns about the gap between their education and the actual practice environment. This misalignment can lead to challenges in the transition from education to practice and may affect the quality of care provided.

Another significant issue in nursing education is the limited opportunities for continuing professional development. Badu-Nyarko (2023) conducted a survey on continuing professional education of nurses in Ghana and found that while there is a desire for ongoing learning, access to such opportunities is often limited, especially for nurses working in rural or remote areas.

The nursing workforce in Ghana faces several challenges that impact its effectiveness and distribution. One of the most pressing issues is the shortage of nurses, particularly in rural and underserved areas. This shortage is exacerbated by high levels of migration of Ghanaian nurses to other countries in search of better working conditions and remuneration (Snow et al., 2011). The “brain drain” of highly skilled nurses has significant implications for the quality of healthcare delivery in Ghana, particularly in specialized areas of care.

Recruitment and retention of nurses, especially in rural areas, remain significant challenges. Konlan et al. (2023) identified several factors contributing to these challenges, including poor working conditions, limited career advancement opportunities, and inadequate support systems for nurses, particularly those returning from maternity leave. These issues not only affect the distribution of the nursing workforce but also impact job satisfaction and the overall quality of care provided.

The nursing workforce in Ghana is also characterized by an uneven distribution, with a concentration of nurses in urban areas and tertiary healthcare facilities. This maldistribution leaves many primary healthcare facilities and rural areas understaffed, affecting access to quality healthcare for a significant portion of the population (Asamani et al., 2020).

Furthermore, the nursing workforce in Ghana faces challenges related to skill mix and specialization. There is a need for more advanced practice nurses and specialists to address the growing complexity of healthcare needs. However, opportunities for specialization and advanced education are often limited, hindering the development of a more diverse and skilled nursing workforce (Donkor & Andrews, 2011).

The working conditions for nurses in Ghana also present significant challenges. Many healthcare facilities face resource constraints, including shortages of essential medical supplies and equipment. This not only affects the quality of care provided but also contributes to job dissatisfaction and burnout among nurses (Tagoe & Quarshie, 2017).

In terms of professional development and career progression, the nursing profession in Ghana faces several



barriers. The lack of a clear career ladder and limited opportunities for advancement can lead to frustration and demotivation among nurses. Li et al. (2022) highlighted the importance of clinical ladder programs in improving nurses' job satisfaction and retention, but such programs are not widely implemented in Ghana.

The COVID-19 pandemic has further exposed and exacerbated many of the challenges facing the nursing workforce in Ghana. The pandemic has increased the workload and stress levels of nurses, while also highlighting the need for more specialized training in areas such as infectious disease management and critical care.

While Ghana has made significant strides in developing its nursing education system and workforce, there remain substantial challenges to be addressed. These include improving the quality and capacity of nursing education programs, addressing the maldistribution of the nursing workforce, enhancing working conditions and career progression opportunities, and developing strategies to retain skilled nurses within the country. Addressing these issues will require a coordinated effort from policymakers, educational institutions, healthcare facilities, and professional organizations to ensure that Ghana's nursing workforce is adequately prepared and supported to meet the country's healthcare needs.

Economic Theory and Frameworks

The economic analysis of advanced nursing degrees in Ghana requires a comprehensive theoretical framework that incorporates various economic concepts and models. This section will explore the application of Human Capital Theory, cost-benefit analysis, and labour market dynamics to the context of nursing education and practice in Ghana.

Human Capital Theory, pioneered by economists such as Gary Becker and Theodore Schultz, provides a valuable framework for understanding the economic implications of investing in advanced nursing education. This theory posits that education and training are investments in human capital that yield returns in the form of increased productivity and earnings over time (Becker, 1962). In the context of nursing education in Ghana, this theory suggests that investing in advanced degrees for nurses can lead to improved skills, knowledge, and productivity, ultimately resulting in better health outcomes and economic benefits for both individuals and society.

Applying Human Capital Theory to nursing education in Ghana, we can anticipate several potential benefits. First, nurses with advanced degrees are likely to have enhanced clinical skills and decision-making abilities, leading to improved patient care and potentially reduced healthcare costs through more efficient and effective interventions. Second, these nurses may be better equipped to take on leadership and management roles, contributing to improved healthcare system efficiency and effectiveness. Third, the increased earning potential associated with advanced degrees may serve as an incentive for nurses to remain in the profession and in Ghana, potentially mitigating the "brain drain" phenomenon (Snow et al., 2011).

However, it's important to note that the returns on investment in human capital are not guaranteed and can be influenced by various factors, including the quality of education, the relevance of the curriculum to local healthcare needs, and the ability of the healthcare system to utilize and compensate advanced practice nurses



appropriately. Therefore, any analysis of the economic impact of advanced nursing degrees in Ghana must consider these contextual factors.

Cost-benefit analysis (CBA) provides another crucial framework for evaluating the economic impact of advanced nursing degrees. CBA involves systematically comparing the costs associated with an intervention (in this case, providing advanced nursing education) with the expected benefits. In the context of nursing education in Ghana, the costs would include direct educational expenses (e.g., tuition, materials), opportunity costs (e.g., lost wages during study), and potential costs to the healthcare system in implementing new roles for advanced practice nurses. Benefits could include improved health outcomes, reduced healthcare costs through more efficient care delivery, increased job satisfaction and retention of nurses, and potential economic spillovers from a more educated workforce.

Several studies have attempted to quantify the cost-effectiveness of advanced practice nurses in various healthcare settings. For example, Martin-Misener et al. (2015) conducted a systematic review of the cost-effectiveness of nurse practitioners in primary and specialized ambulatory care, finding that nurse practitioners were cost-effective in many cases. While this study was not specific to Ghana, it provides a methodological framework that could be adapted to the Ghanaian context.

In applying CBA to advanced nursing education in Ghana, it's crucial to consider both short-term and long-term costs and benefits. While the immediate costs of education may be substantial, the long-term benefits in terms of improved healthcare outcomes and potential cost savings could be significant. Furthermore, the analysis should consider not only the direct economic impacts but also broader societal benefits, such as improved population health and increased healthcare access, which can have indirect economic benefits through increased productivity and reduced burden of disease.

Labour market dynamics play a crucial role in understanding the economic impact of advanced nursing degrees. The supply and demand for nurses with advanced degrees will influence their economic value and the overall impact on the healthcare system. In Ghana, where there is a shortage of healthcare workers, particularly in rural areas (Asamani et al., 2020), increasing the supply of nurses with advanced degrees could help address critical workforce gaps. However, it's essential to consider potential labour market distortions, such as the risk of creating an oversupply of highly educated nurses in urban areas while rural areas remain underserved.

The concept of skill-biased technological change is also relevant to the analysis of advanced nursing education in Ghana. As healthcare technologies and practices evolve, there may be an increasing demand for nurses with advanced skills and knowledge. This could create a wage premium for nurses with advanced degrees, potentially incentivizing further investment in education. However, it's crucial to ensure that the skills developed through advanced education are aligned with the technological and healthcare needs of Ghana to maximize the economic benefits.

Another important economic concept to consider is the multiplier effect. Investments in advanced nursing education could have ripple effects throughout the economy. For example, improved healthcare outcomes



could lead to a healthier, more productive workforce, contributing to overall economic growth. Additionally, the development of a more advanced nursing workforce could attract healthcare investments and potentially position Ghana as a regional hub for healthcare services.

The concept of externalities is also relevant to this analysis. Advanced nursing education can generate positive externalities, such as improved public health knowledge in communities where these nurses work, which can lead to better health behaviors and outcomes beyond the direct patients of these nurses. However, negative externalities should also be considered, such as the potential for increased healthcare costs if advanced practice nurses are not utilized efficiently within the healthcare system.

Efficiency wage theory suggests that paying workers above-market wages can lead to increased productivity and reduced turnover. In the context of advanced nursing degrees in Ghana, offering higher salaries to nurses with advanced degrees could potentially improve retention and motivation, leading to better healthcare outcomes. However, this needs to be balanced against budget constraints and equity considerations within the healthcare workforce.

The concept of return on investment (ROI) is crucial in evaluating the economic impact of advanced nursing degrees. This involves comparing the costs of education with the financial returns over time. While ROI is typically calculated from an individual perspective, it's important to consider the societal ROI as well, which would include broader economic benefits such as improved population health and healthcare system efficiency.

Lastly, the principle of opportunity cost is fundamental to this economic analysis. Resources allocated to advanced nursing education could potentially be used for other healthcare interventions or educational programs. Therefore, it's essential to demonstrate that the benefits of advanced nursing education outweigh those of alternative uses of these resources.

In sum, a comprehensive economic analysis of the impact of advanced nursing degrees in Ghana requires the application of multiple economic theories and frameworks. Human Capital Theory provides a foundation for understanding the potential benefits of investing in advanced education. Cost-benefit analysis offers a structured approach to evaluating the economic viability of such investments. Labour market dynamics help in understanding how the supply and demand for advanced practice nurses might evolve. Concepts such as skill-biased technological change, multiplier effects, externalities, efficiency wages, return on investment, and opportunity cost all contribute to a nuanced understanding of the potential economic impacts.

By applying these economic theories and frameworks to the specific context of Ghana's healthcare system and economy, policymakers and healthcare leaders can make more informed decisions about investments in advanced nursing education. However, it's crucial to recognize that economic models and theories have limitations, and their application should be complemented by contextual understanding and empirical evidence specific to Ghana's healthcare landscape.



Direct Economic Impacts on Healthcare Institutions

The introduction of advanced nursing degrees in Ghana has the potential to significantly impact healthcare institutions directly. This section will explore the cost-effectiveness of advanced practice nurses, quality of care improvements and their associated economic benefits, and the potential for reduced healthcare costs.

Cost-effectiveness of Advanced Practice Nurses:

Advanced Practice Nurses (APNs), including Nurse Practitioners (NPs) and Clinical Nurse Specialists (CNSs), have been shown to provide cost-effective care in various healthcare settings. A systematic review by Donald et al. (2014) examined the cost-effectiveness of NPs and CNSs, finding that in many cases, these advanced practice roles were cost-effective alternatives to physician-led care. While this review was not specific to Ghana, it provides valuable insights that could be applicable to the Ghanaian context.

In Ghana, where there is a shortage of physicians, especially in rural areas, the introduction of APNs could provide a cost-effective solution to improve healthcare access. APNs could potentially fill gaps in primary care and certain specialized services at a lower cost compared to physicians. For example, a study by Abraham et al. (2019) found that APN-led care for chronic diseases was cost-effective compared to physician-led care. Given the rising prevalence of chronic diseases in Ghana, this finding is particularly relevant.

However, it's important to note that the cost-effectiveness of APNs in Ghana would depend on several factors, including their scope of practice, reimbursement rates, and the specific healthcare needs of the population. A Ghana-specific study would be necessary to accurately determine the cost-effectiveness of APNs in this context.

Quality of Care Improvements and Associated Economic Benefits:

Advanced nursing degrees have been associated with improvements in the quality of care, which can have significant economic benefits for healthcare institutions. Aiken et al. (2014) found that hospitals with a higher proportion of nurses holding bachelor's degrees had lower patient mortality rates and failure-to-rescue rates. While this study was conducted in Europe, it suggests that higher nursing education levels can lead to better patient outcomes, which can have economic implications in terms of reduced length of stay, fewer readmissions, and improved patient satisfaction.

In the Ghanaian context, improved quality of care could lead to several economic benefits for healthcare institutions:

1. **Reduced length of stay:** By providing more effective care, APNs could potentially reduce the average length of stay for patients, allowing hospitals to treat more patients and increase their revenue.
2. **Fewer complications:** Advanced nursing knowledge could lead to earlier detection and prevention of complications, reducing the costs associated with treating these complications.
3. **Improved patient satisfaction:** Better quality care often leads to higher patient satisfaction, which can



enhance the reputation of healthcare institutions and potentially increase patient volume.

4. Reduced readmission rates: More comprehensive care and better discharge planning by APNs could reduce readmission rates, which is particularly important if Ghana implements policies that penalize hospitals for high readmission rates.

Woo et al. (2017) conducted a systematic review on the impact of advanced practice nursing roles in emergency and critical care settings. They found that APNs had a positive impact on patient outcomes, length of stay, and cost of care. While this study was not specific to Ghana, it suggests potential areas where APNs could create economic value for healthcare institutions in the country.

Potential for Reduced Healthcare Costs:

The introduction of APNs has the potential to reduce overall healthcare costs for institutions in several ways:

1. Task shifting: APNs can take on tasks traditionally performed by physicians, potentially at a lower cost. Laurant et al. (2018) found that nurse-led care was generally less costly than physician-led care in primary care settings.

2. Efficient resource utilization: APNs may be able to manage certain patient populations more efficiently, leading to better use of hospital resources. For example, Kapu et al. (2014) found that adding NPs to inpatient care teams led to decreased length of stay, cost savings, and increased physician satisfaction.

3. Preventive care: APNs often emphasize preventive care and health education, which could lead to long-term cost savings by reducing the incidence of preventable diseases and complications.

4. Reduced emergency department utilization: By improving access to primary care, APNs could potentially reduce unnecessary emergency department visits, which are often more costly than primary care visits.

However, it's important to note that the potential for cost reduction would depend on how APNs are integrated into the Ghanaian healthcare system. Factors such as scope of practice, reimbursement policies, and the specific health needs of the population would all influence the economic impact.

Challenges and Considerations:

While the potential economic benefits of advanced nursing degrees for healthcare institutions in Ghana are significant, there are several challenges and considerations to keep in mind:

1. Initial investment: Healthcare institutions would need to invest in supporting the education and training of nurses to obtain advanced degrees. This could represent a significant upfront cost.

2. Integration into existing systems: There may be costs associated with integrating APNs into existing healthcare teams and adapting workflows to maximize their effectiveness.

3. Regulatory environment: The economic impact would depend on the regulatory environment in Ghana,



including the scope of practice allowed for APNs and reimbursement policies.

4. Resistance from other healthcare professionals: There may be resistance from physicians or other healthcare professionals to the expanded roles of APNs, which could impact the realization of potential economic benefits.

5. Need for Ghana-specific data: Much of the existing research on the economic impact of APNs comes from high-income countries. There is a need for Ghana-specific studies to accurately assess the economic impact in this context.

In summary, the introduction of advanced nursing degrees in Ghana has the potential to create significant direct economic impacts on healthcare institutions. The cost-effectiveness of APNs, improvements in quality of care, and potential for reduced healthcare costs could lead to substantial economic benefits. However, these benefits would need to be weighed against the costs and challenges of implementing and supporting advanced nursing roles. Furthermore, the realization of these economic benefits would depend on careful planning, appropriate policies, and support from all stakeholders in the Ghanaian healthcare system.

To fully understand and maximize the economic impact of advanced nursing degrees on healthcare institutions in Ghana, further research specific to the Ghanaian context is needed. This could include pilot studies of APN roles in different healthcare settings, cost-effectiveness analyses, and evaluations of the impact on patient outcomes and healthcare costs. Such research would provide valuable evidence to guide policy decisions and support the effective implementation of advanced nursing roles in Ghana's healthcare system.

Indirect Economic Impacts on Healthcare System

The introduction of advanced nursing degrees in Ghana is likely to have significant indirect economic impacts on the broader healthcare system. These impacts extend beyond the immediate effects on individual healthcare institutions and can potentially reshape the entire healthcare landscape. This section will explore the potential for task shifting and role substitution, the impact on primary care accessibility and costs, and the potential reduction in emergency department utilization and associated costs.

Potential for Task Shifting and Role Substitution:

Task shifting, the process of delegating tasks to less specialized health workers, is a strategy that has been increasingly adopted in many countries to address healthcare workforce shortages and improve access to care. In the context of advanced nursing degrees in Ghana, this could involve nurses with advanced training taking on roles traditionally performed by physicians.

Maier and Aiken (2016) conducted a cross-country comparative study on task shifting from physicians to nurses in primary care across 39 countries. They found that task shifting was associated with increased access to care, particularly in underserved areas. In Ghana, where there is a significant shortage of physicians, especially in rural areas, task shifting to advanced practice nurses could potentially increase healthcare coverage and efficiency.



The potential economic impact of task shifting is substantial. By allowing nurses with advanced degrees to perform tasks previously restricted to physicians, healthcare systems can potentially provide services at a lower cost. Laurant et al. (2018) conducted a Cochrane review on nurses as substitutes for doctors in primary care. They found that nurse-led care may lead to similar or better health outcomes for a range of conditions compared to doctor-led care, and may also reduce costs.

However, it's important to note that the economic benefits of task shifting depend on several factors, including the regulatory environment, the specific tasks being shifted, and the relative costs of different healthcare professionals. In Ghana, careful consideration would need to be given to how task shifting is implemented to ensure it results in economic benefits without compromising quality of care.

Impact on Primary Care Accessibility and Costs:

Advanced nursing degrees could have a significant impact on primary care accessibility and costs in Ghana. Naylor and Kurtzman (2010) discussed the role of nurse practitioners in reinventing primary care, highlighting their potential to improve access, quality, and cost-effectiveness of primary care services.

In Ghana, where access to primary care is limited in many areas, advanced practice nurses could play a crucial role in expanding access. This could have several indirect economic impacts:

1. **Reduced burden on secondary and tertiary care:** By improving access to primary care, advanced practice nurses could potentially reduce the burden on more expensive secondary and tertiary care facilities. This could lead to overall cost savings for the healthcare system.
2. **Earlier intervention and prevention:** Improved access to primary care could facilitate earlier detection and management of health conditions, potentially reducing the need for more expensive interventions later on.
3. **Improved management of chronic diseases:** Advanced practice nurses could play a key role in managing chronic diseases, which are a growing concern in Ghana. Effective management of chronic diseases in primary care settings could lead to significant cost savings by reducing complications and hospitalizations.

Swan et al. (2015) conducted a systematic review on the quality of primary care provided by advanced practice nurses. They found that the quality of care provided by nurse practitioners in primary care settings was comparable to that of physicians for the conditions studied. This suggests that expanding the role of advanced practice nurses in primary care in Ghana could potentially improve access without compromising quality.

Potential Reduction in Emergency Department Utilization and Costs:

One of the significant indirect economic impacts of advanced nursing degrees could be a reduction in unnecessary emergency department (ED) utilization. In many healthcare systems, overutilization of ED services for non-urgent conditions is a major driver of healthcare costs.



Jennings et al. (2015) conducted a systematic review on the impact of nurse practitioner services on cost, quality of care, satisfaction, and waiting times in the emergency department. They found that nurse practitioners working in the ED could reduce waiting times, length of stay, and cost, while maintaining high levels of patient satisfaction.

In the Ghanaian context, advanced practice nurses could potentially reduce ED utilization and costs in several ways:

1. Improving access to primary care: By increasing access to primary care services, advanced practice nurses could reduce the number of patients seeking non-urgent care in EDs.
2. Providing care in alternative settings: Advanced practice nurses could staff urgent care centers or after-hours clinics, providing a less expensive alternative to ED care for non-emergency conditions.
3. Efficient triage and management in EDs: Within emergency departments, advanced practice nurses could improve efficiency through effective triage and management of less complex cases.

Carter and Chochinov (2007) conducted a systematic review on the impact of nurse practitioners on cost, quality of care, satisfaction, and wait times in the emergency department. They found that nurse practitioners were able to reduce wait times and length of stay in the ED, potentially leading to cost savings.

However, it's important to note that the potential for reducing ED utilization and costs would depend on how advanced nursing roles are implemented in Ghana and the specific challenges facing Ghana's emergency care system.

Challenges and Considerations:

While the potential indirect economic impacts of advanced nursing degrees on Ghana's healthcare system are significant, there are several challenges and considerations to keep in mind:

1. Regulatory environment: The realization of these economic benefits would depend on the regulatory environment in Ghana, including scope of practice laws for advanced practice nurses.
2. Healthcare system readiness: The Ghanaian healthcare system would need to be prepared to integrate advanced practice nurses effectively into various care settings.
3. Cultural acceptance: There may be cultural barriers to accepting care from nurses in roles traditionally filled by physicians. Overcoming these barriers would be crucial to realizing the potential economic benefits.
4. Education and training capacity: Ghana would need to ensure it has the capacity to provide high-quality advanced nursing education to realize these benefits.
5. Retention of advanced practice nurses: Given the global demand for nurses with advanced degrees, Ghana would need to implement strategies to retain these professionals to benefit from their skills.



6. Need for Ghana-specific research: Much of the existing research on the economic impact of advanced practice nurses comes from high-income countries. There is a need for Ghana-specific studies to accurately assess the potential impacts in the Ghanaian context.

However, realizing these potential benefits would require careful planning, appropriate policies, and support from all stakeholders in the Ghanaian healthcare system. It would also necessitate a significant investment in nursing education and a commitment to creating an environment where advanced practice nurses can work to their full potential.

To fully understand and maximize the indirect economic impacts of advanced nursing degrees on Ghana's healthcare system, further research specific to the Ghanaian context is crucial. This could include studies on the cost-effectiveness of task shifting in various healthcare settings, evaluations of the impact of advanced practice nurses on primary care access and utilization, and assessments of the potential for reducing emergency department costs. Such research would provide valuable evidence to guide policy decisions and support the effective implementation of advanced nursing roles in Ghana's healthcare system.

Workforce Dynamics

The introduction of advanced nursing degrees in Ghana has the potential to significantly alter the dynamics of the healthcare workforce. This section will explore the impact on career progression and job satisfaction, the potential for reduced nurse migration and brain drain, and the effect on interprofessional team dynamics.

Career Progression and Job Satisfaction:

Advanced nursing degrees can open up new career pathways and opportunities for professional growth, potentially leading to increased job satisfaction among nurses. Tagoe and Quarshie (2017) found a positive relationship between emotional intelligence and job satisfaction among nurses in Accra, Ghana. Higher education levels, including advanced degrees, can contribute to the development of emotional intelligence and other professional competencies, potentially enhancing job satisfaction.

The implementation of clinical ladder programmes, which recognize and reward the development of clinical expertise and advanced education, can play a crucial role in career progression and job satisfaction. Li et al. (2022) highlighted the importance of such programs in improving nurses' willingness to participate in professional development activities. In the Ghanaian context, the introduction of advanced nursing degrees could facilitate the development of more structured career progression pathways, potentially increasing job satisfaction and retention.

However, it's important to note that the impact on job satisfaction would depend on how advanced nursing roles are integrated into the healthcare system. If advanced practice nurses are not given the opportunity to work to their full scope of practice, or if there is resistance from other healthcare professionals, it could lead to frustration and job dissatisfaction. Sangster-Gormley et al. (2013) identified several factors that influence the successful implementation of nurse practitioner roles, including role clarity, team involvement, and organizational support.



Potential for Reduced Nurse Migration and Brain Drain:

Ghana, like many other low- and middle-income countries, faces significant challenges with the migration of healthcare professionals, particularly nurses, to high-income countries. This "brain drain" has substantial economic implications, as it represents a loss of human capital and the investment made in educating these professionals.

The introduction of advanced nursing degrees could potentially help mitigate this problem in several ways:

1. **Increased job satisfaction:** As discussed earlier, advanced degrees could lead to greater job satisfaction through expanded roles and career progression opportunities, potentially reducing the incentive to migrate.
2. **Competitive salaries:** Advanced practice nurses may command higher salaries, potentially reducing the wage differential that often drives migration.
3. **Professional prestige:** Advanced nursing roles could enhance the professional status of nursing in Ghana, making it a more attractive career option.
4. **Opportunities for specialization:** Advanced degrees often allow for specialization in areas of high interest, which could make staying in Ghana more appealing for some nurses.

However, it's crucial to note that the impact on migration would depend on various factors, including the overall economic conditions in Ghana, working conditions in the healthcare sector, and global demand for nurses with advanced degrees. Snow et al. (2011) identified several factors leading to reduced recruitment and retention of health professionals in remote areas of Ghana, including poor career development opportunities and low salaries. Addressing these issues would be crucial in leveraging advanced nursing degrees to reduce brain drain.

Impact on Interprofessional Team Dynamics:

The introduction of advanced nursing roles can significantly impact interprofessional team dynamics within healthcare settings. Brooks and Fulton (2020) discussed the role of advanced practice registered nurses and physician assistants in driving high-functioning clinical teams. They found that when properly integrated, these advanced practice providers can enhance team performance and patient outcomes.

In the Ghanaian context, the introduction of advanced nursing roles could potentially:

1. **Improve collaboration:** Advanced practice nurses could serve as a bridge between nursing staff and physicians, facilitating better communication and collaboration.
2. **Enhance care coordination:** With their advanced training, these nurses could play a crucial role in coordinating care across different healthcare providers and settings.
3. **Promote evidence-based practice:** Advanced practice nurses are often at the forefront of implementing evidence-based practices, which could elevate the standard of care across the team.



4. Support staff development: Advanced practice nurses could mentor and support the professional development of other nursing staff.

However, the integration of advanced practice nurses into healthcare teams is not without challenges. Zwijnenberg and Bours (2012) found that the reallocation of tasks to nurse practitioners and physician assistants in Dutch hospitals faced several barriers, including resistance from physicians and lack of clarity about roles and responsibilities. Similar challenges could be anticipated in Ghana and would need to be carefully managed to realize the potential benefits of advanced nursing roles.

Challenges and Considerations:

While the potential impacts of advanced nursing degrees on workforce dynamics in Ghana are significant, several challenges and considerations need to be addressed:

1. Role clarity and scope of practice: Clear definitions of the roles and responsibilities of advanced practice nurses would be crucial to their successful integration into the healthcare workforce.
2. Regulatory framework: The development of appropriate regulatory frameworks to support advanced nursing practice would be essential.
3. Education and training capacity: Ghana would need to ensure it has the capacity to provide high-quality advanced nursing education to meet the demand for these roles.
4. Cultural and professional attitudes: Changing attitudes towards advanced nursing roles among other healthcare professionals and the general public may be necessary for their successful integration.
5. Equity considerations: Care should be taken to ensure that the introduction of advanced nursing roles does not exacerbate existing inequities in the healthcare workforce, such as the urban-rural divide.
6. Retention strategies: While advanced degrees might help reduce migration, specific strategies may still be needed to retain these highly skilled professionals within the Ghanaian healthcare system.
7. Continuous professional development: Systems for ongoing professional development and support for advanced practice nurses would be crucial to maintaining their skills and job satisfaction over time.

However, realizing these potential benefits would require careful planning, appropriate policies, and support from all stakeholders in the Ghanaian healthcare system. It would also necessitate a significant investment in nursing education and a commitment to creating an environment where advanced practice nurses can work to their full potential.

To fully understand and maximize the impact of advanced nursing degrees on workforce dynamics in Ghana, further research specific to the Ghanaian context is crucial. This could include studies on the career trajectories of nurses with advanced degrees, evaluations of the impact of advanced nursing roles on team performance and patient outcomes, and assessments of the factors influencing the retention of highly skilled nurses in Ghana. Such research would provide valuable evidence to guide policy decisions and support the



effective implementation of advanced nursing roles in Ghana's healthcare system.

Comparative Analysis:

The implementation of advanced nursing degrees and the expansion of advanced practice nursing roles have been studied in various countries, providing valuable insights that can inform the potential economic impact of such initiatives in Ghana. This comparative analysis will examine experiences from both high-income and low- and middle-income countries, focusing on cost-effectiveness, quality of care, workforce dynamics, and implementation challenges.

Cost-Effectiveness:

Several studies from high-income countries have demonstrated the cost-effectiveness of advanced practice nurses (APNs). In the United States, Newhouse et al. (2011) conducted a systematic review of APN outcomes from 1990 to 2008. They found consistent evidence that APNs provided effective and high-quality patient care, with some studies indicating cost savings or cost neutrality compared to physician-led care.

Similarly, Martin-Misener et al. (2015) conducted a systematic review of the cost-effectiveness of nurse practitioners in primary and specialized ambulatory care. They found that nurse practitioners in alternative provider ambulatory primary care roles were equivalent or better in lowering health resource use and achieving similar outcomes to comparators. While these studies were conducted in high-income countries, they suggest potential areas where APNs could create economic value in the Ghanaian healthcare system.

In the context of low- and middle-income countries, task-shifting to nurses with advanced training has shown promise in improving cost-effectiveness. Seidman and Atun (2017) reviewed the evidence on task-shifting for HIV treatment in sub-Saharan Africa and found that it was generally cost-effective. While not specific to advanced nursing degrees, this suggests that expanding the roles of nurses through advanced education could potentially yield cost savings in Ghana's healthcare system.

Quality of Care:

The impact of advanced nursing degrees on quality of care has been extensively studied in various contexts. Aiken et al. (2014) conducted a large-scale study across nine European countries and found that hospitals with a higher proportion of bachelor's-prepared nurses had significantly lower mortality rates. While this study focused on bachelor's degrees rather than advanced degrees, it suggests a positive relationship between higher nursing education and patient outcomes.

In the United States, Swan et al. (2015) conducted a systematic review of the quality of primary care delivered by nurse practitioners. They found that the quality of care provided by nurse practitioners in primary care settings was comparable to that of physicians for the conditions studied. This suggests that expanding the role of APNs in primary care in Ghana could potentially improve access without compromising quality.

In low- and middle-income countries, studies have shown positive impacts of task-shifting to nurses with additional training. For instance, Iwu and Holzemer (2014) reviewed the outcomes of task-shifting HIV care



to nurses in sub-Saharan Africa and found that it generally resulted in equivalent or improved quality of care. While not specific to advanced nursing degrees, these findings suggest potential benefits of expanding nursing roles through advanced education in Ghana.

Workforce Dynamics:

The introduction of advanced nursing degrees has been shown to impact workforce dynamics in various ways across different countries. In the United States, Buerhaus et al. (2015) found that primary care nurse practitioners were more likely than primary care physicians to practice in rural areas, suggesting that APNs could help address workforce distribution challenges similar to those faced in Ghana.

The potential for advanced nursing roles to reduce brain drain has been observed in some contexts. Buchan et al. (2015) discussed how creating advanced and specialist nursing roles in Thailand helped to retain experienced nurses in the profession. This could be particularly relevant for Ghana, which faces significant challenges with nurse migration.

However, experiences from other countries also highlight potential challenges. Pulcini et al. (2010) conducted an international survey on advanced practice nursing education, practice, and regulation. They found significant variations in how advanced practice nursing roles were defined and regulated across countries, highlighting the importance of clear regulatory frameworks.

Implementation Challenges:

The implementation of advanced nursing degrees and roles has faced various challenges across different countries. In Canada, Sangster-Gormley et al. (2013) identified several factors that influence the successful implementation of nurse practitioner roles, including role clarity, team involvement, and organizational support. These factors would likely be relevant in the Ghanaian context as well.

In low- and middle-income countries, additional challenges have been identified. Fawaz et al. (2018) discussed challenges facing nursing education in advanced healthcare environments, including limited resources, shortage of qualified faculty, and the need to align curricula with local healthcare needs. These challenges would need to be addressed in implementing advanced nursing degrees in Ghana.

Regulatory barriers have also been a common challenge across countries. Delamaire and Lafortune (2010) compared experiences with advanced practice nursing roles in 12 developed countries and found that scope-of-practice regulations were a key factor influencing the effectiveness of these roles. Developing appropriate regulatory frameworks would be crucial for the successful implementation of advanced nursing roles in Ghana.

Lessons for Ghana:

Drawing from these international experiences, several key lessons emerge for Ghana:

1. Cost-effectiveness: While evidence from high-income countries suggests potential cost savings from APNs,



Ghana-specific studies would be needed to accurately assess the economic impact in the Ghanaian context.

2. **Quality of Care:** International evidence suggests that APNs can provide high-quality care, particularly in primary care settings. This could be particularly relevant for Ghana in addressing healthcare access challenges in underserved areas.
3. **Workforce Distribution:** Advanced nursing roles could potentially help address workforce distribution challenges in Ghana, particularly in rural areas.
4. **Brain Drain:** Creating advanced nursing roles could potentially help retain experienced nurses in Ghana, but would need to be accompanied by appropriate incentives and working conditions.
5. **Implementation Challenges:** Clear role definitions, supportive organizational cultures, and appropriate regulatory frameworks would be crucial for the successful implementation of advanced nursing roles in Ghana.
6. **Education and Training:** Significant investment in nursing education would be needed, including addressing challenges such as faculty shortages and curriculum development.

While international experiences provide valuable insights, it's crucial to recognize the unique context of Ghana's healthcare system. The potential economic impact of advanced nursing degrees in Ghana would depend on how these roles are defined, regulated, and integrated into the existing healthcare system. Ghana-specific research would be essential to fully understand and maximize the potential benefits of advanced nursing degrees in the country.

Policy Implications:

The potential economic impact of advanced nursing degrees on healthcare institutions and workforce dynamics in Ghana has significant policy implications. These implications span across education, regulation, healthcare delivery, and workforce management. Based on the analysis conducted in this paper, the following policy recommendations are proposed:

1. Investment in Advanced Nursing Education:

The government of Ghana should consider increasing investment in advanced nursing education programmes. This could involve:

- a) Expanding existing nursing schools to offer advanced degree programs.
- b) Providing scholarships or financial aid for nurses pursuing advanced degrees.
- c) Collaborating with international institutions to develop high-quality advanced nursing programs.

Rationale: As demonstrated by international studies (Aiken et al., 2014; Swan et al., 2015), higher levels of nursing education are associated with improved patient outcomes and potentially cost-effective care.



Investing in advanced nursing education could yield long-term benefits for Ghana's healthcare system.

2. Development of Clear Regulatory Frameworks:

The Ghana Nurses and Midwives Council should work on developing clear regulatory frameworks for advanced practice nursing roles. This should include:

- a) Defining the scope of practice for different advanced nursing roles.
- b) Establishing licensure and certification processes for advanced practice nurses.
- c) Creating guidelines for the integration of advanced practice nurses into various healthcare settings.

Rationale: Pulcini et al. (2010) and Delamaire and Lafortune (2010) highlighted the importance of clear regulatory frameworks in the successful implementation of advanced nursing roles. Clear regulations would provide the foundation for effectively integrating advanced practice nurses into Ghana's healthcare system.

3. Task-Shifting and Role Expansion:

The Ministry of Health should consider policies that support task-shifting and role expansion for nurses with advanced degrees. This could include:

- a) Identifying areas where advanced practice nurses could take on expanded roles, particularly in primary care and management of chronic diseases.
- b) Developing guidelines for collaborative practice between advanced practice nurses and physicians.
- c) Implementing pilot programs to test and evaluate the impact of expanded nursing roles in various healthcare settings.

Rationale: Studies from low- and middle-income countries have shown the potential benefits of task-shifting in improving healthcare access and outcomes (Iwu & Holzemer, 2014; Seidman & Atun, 2017). Expanding the roles of nurses with advanced degrees could help address healthcare access challenges in Ghana, particularly in underserved areas.

4. Workforce Retention Strategies:

Develop policies aimed at retaining nurses with advanced degrees within the Ghanaian healthcare system. This could include:

- a) Creating attractive career pathways for nurses with advanced degrees.
- b) Implementing competitive compensation packages for advanced practice nurses.
- c) Providing opportunities for continued professional development and research.

Rationale: Buchan et al. (2015) discussed how creating advanced and specialist nursing roles helped retain



experienced nurses in Thailand. Similar strategies could help address the challenge of nurse migration in Ghana.

5. Integration into Primary Care:

Develop policies to integrate advanced practice nurses into primary care settings, particularly in rural and underserved areas. This could involve:

- a) Incentives for advanced practice nurses to work in rural areas.
- b) Development of community-based primary care models led by advanced practice nurses.
- c) Integration of advanced practice nurses into existing primary healthcare programs.

Rationale: Studies from high-income countries have shown that nurse practitioners can provide cost-effective, high-quality primary care (Swan et al., 2015; Buerhaus et al., 2015). Given Ghana's challenges with healthcare access, particularly in rural areas, integrating advanced practice nurses into primary care could yield significant benefits.

6. Support for Interprofessional Collaboration:

Develop policies that promote interprofessional collaboration and team-based care. This could include:

- a) Incorporating interprofessional education into healthcare professional training programs.
- b) Developing guidelines for collaborative practice in various healthcare settings.
- c) Implementing incentives for healthcare institutions that effectively utilize interprofessional teams.

Rationale: Brooks and Fulton (2020) highlighted the importance of interprofessional collaboration in maximizing the benefits of advanced practice providers. Promoting collaboration could help ensure the effective integration of advanced practice nurses into Ghana's healthcare system.

7. Investment in Healthcare Infrastructure:

Alongside investment in advanced nursing education, consider policies to improve healthcare infrastructure, particularly in primary care and rural settings. This could involve:

- a) Upgrading facilities to support the practice of advanced nursing roles.
- b) Investing in health information technology to support evidence-based practice and care coordination.
- c) Improving supply chains for essential medicines and equipment.

Rationale: The effectiveness of advanced practice nurses depends on the healthcare context in which they work. Improving infrastructure could help maximize the potential benefits of introducing advanced nursing roles.



8. Continuous Monitoring and Evaluation:

Implement policies for ongoing monitoring and evaluation of the impact of advanced nursing roles. This should include:

- a) Developing systems for collecting data on the activities and outcomes of advanced practice nurses.
- b) Conducting regular evaluations of the cost-effectiveness and quality of care provided by advanced practice nurses.
- c) Using evaluation findings to continuously refine policies and practices.

Rationale: Given the limited evidence from the Ghanaian context, ongoing evaluation would be crucial to understand the actual impact of advanced nursing roles and to guide future policy decisions.

9. Public Education and Awareness:

Develop policies to promote public understanding and acceptance of advanced nursing roles. This could involve:

- a) Public education campaigns about the roles and capabilities of advanced practice nurses.
- b) Engagement with community leaders and patient advocacy groups.
- c) Showcasing success stories and positive outcomes from advanced nursing practice.

Rationale: Public acceptance is crucial for the successful implementation of new healthcare roles. Sangster-Gormley et al. (2013) identified stakeholder engagement as a key factor in the successful implementation of nurse practitioner roles.

10. Support for Nursing Research:

Develop policies to support nursing research, particularly in areas related to advanced practice nursing. This could include:

- a) Establishing research grants for studies on advanced nursing practice in Ghana.
- b) Encouraging collaborations between healthcare institutions and academic research centers.
- c) Supporting the dissemination of research findings to inform practice and policy.

Rationale: Ghana-specific research is crucial to understand the actual impact of advanced nursing roles in the Ghanaian context and to guide evidence-based policy making.

In conclusion, the potential economic impact of advanced nursing degrees in Ghana necessitates a



comprehensive policy approach. These policy recommendations aim to create an enabling environment for the effective implementation of advanced nursing roles, maximize their potential benefits, and address potential challenges. However, it's important to note that these policies should be implemented gradually, with ongoing evaluation and adjustment based on emerging evidence and experiences. Furthermore, successful implementation would require collaboration among various stakeholders, including the government, healthcare institutions, professional associations, and educational institutions.

Future Directions for Research

The analysis of the potential economic impact of advanced nursing degrees on healthcare institutions and workforce dynamics in Ghana has revealed several areas where further research is needed. These research directions are crucial for informing policy decisions, guiding the implementation of advanced nursing roles, and maximizing the potential benefits for Ghana's healthcare system. The following are key areas for future research:

1. Cost-Effectiveness Studies in the Ghanaian Context:

While international studies have demonstrated the cost-effectiveness of advanced practice nursing roles in various settings, Ghana-specific research is needed to understand the economic impact in the local context.

Proposed research:

- a) Conduct randomized controlled trials comparing the cost-effectiveness of care provided by advanced practice nurses versus traditional care models in various Ghanaian healthcare settings.
- b) Perform economic modeling studies to project the long-term cost implications of implementing advanced nursing roles in Ghana's healthcare system.
- c) Analyze the cost-effectiveness of different models of integrating advanced practice nurses into primary care settings in Ghana.

Rationale: Such studies would provide concrete evidence to support decision-making regarding the investment in advanced nursing education and the implementation of advanced nursing roles in Ghana.

2. Impact on Healthcare Access and Outcomes:

Research is needed to understand how advanced nursing roles could impact healthcare access and outcomes in Ghana, particularly in underserved areas.

Proposed research:

- a) Conduct longitudinal studies to assess changes in healthcare access and outcomes in areas where advanced practice nurses are introduced.
- b) Evaluate the impact of nurse-led primary care clinics on healthcare utilization patterns and health outcomes



in rural Ghana.

- c) Assess the effectiveness of advanced practice nurses in managing chronic diseases prevalent in Ghana.

Rationale: This research would help quantify the potential benefits of advanced nursing roles in addressing Ghana's healthcare challenges and inform strategies for their optimal deployment.

3. Workforce Dynamics and Retention:

Further research is needed to understand how the introduction of advanced nursing degrees might impact workforce dynamics and nurse retention in Ghana.

Proposed research:

- a) Conduct longitudinal studies tracking the career trajectories of nurses who obtain advanced degrees in Ghana.
- b) Analyze the factors influencing the decision of nurses with advanced degrees to remain in or leave the Ghanaian healthcare system.
- c) Evaluate the impact of advanced nursing roles on job satisfaction and burnout among healthcare professionals in Ghana.

Rationale: Understanding these dynamics would be crucial for developing effective strategies to retain highly skilled nurses and maximize the return on investment in advanced nursing education.

4. Implementation Challenges and Strategies:

Research is needed to identify and address the challenges in implementing advanced nursing roles in the Ghanaian context.

Proposed research:

- a) Conduct qualitative studies to understand the perspectives of various stakeholders (nurses, physicians, patients, policymakers) on the introduction of advanced nursing roles.
- b) Evaluate pilot programmes implementing advanced nursing roles to identify best practices and challenges.
- c) Assess the effectiveness of different strategies for integrating advanced practice nurses into existing healthcare teams.

Rationale: This research would provide valuable insights for developing effective implementation strategies and overcoming potential barriers to the successful integration of advanced nursing roles.

5. Educational Needs and Curriculum Development:



Research is needed to ensure that advanced nursing education programs in Ghana are effectively preparing nurses for expanded roles.

Proposed research:

- a) Conduct needs assessments to identify the specific competencies required for advanced nursing practice in Ghana.
- b) Evaluate the effectiveness of different educational models (e.g., online learning, international partnerships) in delivering advanced nursing education in Ghana.
- c) Assess the alignment between advanced nursing curricula and the healthcare needs of the Ghanaian population.

Rationale: This research would help ensure that investment in advanced nursing education translates into improved capability to address Ghana's healthcare challenges.

6. Regulatory and Policy Framework:

Research is needed to inform the development of appropriate regulatory and policy frameworks for advanced nursing practice in Ghana.

Proposed research:

- a) Conduct comparative analyses of regulatory frameworks for advanced nursing practice in different countries and their applicability to the Ghanaian context.
- b) Evaluate the impact of different scope-of-practice regulations on the effectiveness of advanced nursing roles.
- c) Assess the policy implications of integrating advanced practice nurses into Ghana's healthcare system.

Rationale: This research would provide evidence-based guidance for policymakers in developing regulations that enable effective advanced nursing practice while ensuring patient safety.

7. Economic Impact on Healthcare Institutions:

Detailed research is needed to understand how the introduction of advanced nursing roles might impact the financial performance of healthcare institutions in Ghana.

Proposed research:

- a) Conduct case studies of healthcare institutions that have integrated advanced practice nurses to analyze changes in financial performance.
- b) Develop economic models to project the financial impact of different strategies for integrating advanced



practice nurses into healthcare institutions.

- c) Analyze the impact of advanced nursing roles on resource utilization within healthcare institutions.

Rationale: This research would provide valuable insights for healthcare administrators and policymakers in planning for the integration of advanced nursing roles.

8. Impact on Interprofessional Dynamics:

Research is needed to understand how the introduction of advanced nursing roles might affect interprofessional relationships and team dynamics in Ghanaian healthcare settings.

Proposed research:

- a) Conduct observational studies of interprofessional teams including advanced practice nurses in various healthcare settings.
- b) Analyze the factors influencing effective collaboration between advanced practice nurses and other healthcare professionals.
- c) Evaluate the impact of interprofessional education initiatives on the integration of advanced nursing roles.

Rationale: Understanding these dynamics would be crucial for developing strategies to promote effective collaboration and maximize the benefits of advanced nursing roles.

9. Patient Perceptions and Satisfaction:

Research is needed to understand patient perceptions of and satisfaction with care provided by advanced practice nurses in the Ghanaian context.

Proposed research:

- a) Conduct surveys and qualitative studies to assess patient satisfaction with care provided by advanced practice nurses compared to traditional care models.
- b) Analyze factors influencing patient acceptance of advanced practice nurses in various healthcare settings.
- c) Evaluate the impact of public education initiatives on patient perceptions of advanced nursing roles.

Rationale: Patient acceptance is crucial for the successful implementation of advanced nursing roles, and this research would inform strategies for promoting public understanding and acceptance.

10. Long-term Impact on Health System Performance:

Longitudinal research is needed to understand the long-term impact of advanced nursing roles on the performance of Ghana's healthcare system.



Proposed research:

- a) Conduct long-term studies tracking changes in key health system performance indicators following the introduction of advanced nursing roles.
- b) Develop and validate predictive models for the impact of advanced nursing roles on health system performance.
- c) Analyze the contribution of advanced nursing roles to progress towards universal health coverage in Ghana.

Rationale: This research would provide a comprehensive understanding of the systemic impacts of advanced nursing roles and inform long-term health workforce planning.

In conclusion, these research directions highlight the need for a comprehensive, multifaceted approach to understanding the economic impact and broader implications of advanced nursing degrees in Ghana. The proposed studies span various methodologies, including quantitative and qualitative approaches, economic modeling, and longitudinal studies. They aim to provide a robust evidence base to inform policy decisions, guide implementation strategies, and maximize the potential benefits of advanced nursing roles in Ghana.

It's important to note that conducting this research will require significant investment in research capacity, collaboration between academic institutions and healthcare organizations, and support from policymakers. Furthermore, the research agenda should remain flexible and responsive to emerging issues and findings as advanced nursing roles are implemented in Ghana.

By pursuing these research directions, Ghana can develop a nuanced, context-specific understanding of the economic impact of advanced nursing degrees, enabling evidence-based decisions that optimize the contribution of advanced practice nurses to the country's healthcare system.

References

- [1] Asamani, J.A., Amertil, N.P., Ismaila, H. *et al.* The imperative of evidence-based health workforce planning and implementation: lessons from nurses and midwives unemployment crisis in Ghana. *Hum Resour Health* 18, 16 (2020). <https://doi.org/10.1186/s12960-020-0462-5>.
- [2] Reyes, Helen., Hadley, Lance., & Davenport, Deborah, A Comparative Analysis of Cultural Competence in Beginning and Graduating Nursing Students, *International Scholarly Research Notices*, 2013, 929764, 5 pages, 2013. <https://doi.org/10.1155/2013/929764>.
- [3] Julia van Kraaij., Marloes Veenstra., Dewi Stalpers., Lisette Schoonhoven., Hester Vermeulen., & Catharina van Oostveen (2023). Uniformity along the way: A scoping review on characteristics of nurse education programs worldwide. *Nurse Education Today*, 120, 105646. <https://doi.org/10.1016/j.nedt.2022.105646>.



- [4] Hallow report (2021). Review of Minimum Education and Training Standards in Nursing and Midwifery – Desk Based Research. <https://www.nmc.org.uk/globalassets/sitedocuments/education-programme/education-programme-standards-research-sept-2021---harlow-consulting-benchmarking-report.pdf>.
- [5] Badu-Nyarko, S. K. (2023). A Survey of Continuing Professional Education of Nurses in Ghana. *Asian Journal of Humanities and Social Sciences (AJHSS)*, 3(1). <http://192.99.73.27/pdfs/Vol3Issue1/9.pdf>.
- [6] Konlan, K. D., Pwavra, J. B. P., Armah-Mensah, M., Konlan, K. D., Aryee, R., & Narkotey, S. (2023). Challenges and coping strategies of nurses and midwives after maternity leave: A cross-sectional study in a human resource-constrained setting in Ghana. *Nursing open*, 10(1), 208–216. <https://doi.org/10.1002/nop2.1296>.
- [7] Bell, S. A., Rominski, S., Bam, V., Donkor, E., & Lori, J. (2013). Analysis of nursing education in Ghana: Priorities for scaling-up the nursing workforce. *Nursing & health sciences*, 15(2), 244–249. <https://doi.org/10.1111/nhs.12026>.
- [8] Salisu, Waliu., Sadooghiasl, Afsaneh., Ibrahim, Yakubu., Abdul-Rashid, Haidallah & Mohammed, Shaibu. (2020). The experiences of nurses and midwives regarding nursing education in Ghana: A qualitative content analysis. https://www.researchgate.net/publication/346601894_The_experiences_of_nurses_and_midwives_regarding_nursing_education_in_Ghana_A_qualitative_content_analysis.
- [9] Donkor, N. T., & Andrews, L. D. (2011). 21st century nursing practice in Ghana: challenges and opportunities. *International nursing review*, 58(2), 218–224. <https://doi.org/10.1111/j.1466-7657.2010.00856.x>.
- [10] Snow, R.C., Asabir, K., Mutumba, M. *et al.* Key factors leading to reduced recruitment and retention of health professionals in remote areas of Ghana: a qualitative study and proposed policy solutions. *Hum Resour Health* 9, 13 (2011). <https://doi.org/10.1186/1478-4491-9-13>.
- [11] Opere, M., & Mill, J. E. (2000). The evolution of nursing education in a postindependence context--Ghana from 1957 to 1970. *Western journal of nursing research*, 22(8), 936–944. <https://doi.org/10.1177/01939450022044890>.
- [12] Salisu WJ, Dehghan Nayeri N, Yakubu I, Ebrahimipour F. Challenges and facilitators of professional socialization: A systematic review. *Nursing Open*. 2019; 6: 1289–1298. <https://doi.org/10.1002/nop2.341>.
- [13] Tagoe, Theophilus & Quarshie, Emmanuel. (2017). The relationship between emotional intelligence and job satisfaction among nurses in Accra. *Nursing open*. 4. 84-89. <https://doi.org/10.1002/nop2.70>.
- [14] Li, Yi-Hui & Chou, Man-Chun & Lin, Ling-Dai & Tsai, Ching-Ching & Lin, Mei-Hsiang. (2022). Relationships between Willingness to Participate in the Nursing Clinical Ladder Program and Its Related Factors among Clinical Nurses. *Healthcare*. 10. 369. <https://doi.org/10.3390/healthcare10020369>.
- [15] Aiken, L. H., Sloane, D. M., Bruyneel, L., Van den Heede, K., Griffiths, P., Busse, R., Diomidous, M., Kinnunen, J., Kózka, M., Lesaffre, E., McHugh, M. D., Moreno-Casbas, M. T., Rafferty, A. M., Schwendimann, R., Scott, P. A., Tishelman, C., van Achterberg, T., Sermeus, W., & RN4CAST consortium (2014). Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study. *Lancet (London, England)*, 383(9931), 1824–1830. [https://doi.org/10.1016/S0140-6736\(13\)62631-8](https://doi.org/10.1016/S0140-6736(13)62631-8).
- [16] [Lusine Poghosyan., Edward J. Timmons., Cilgy M. Abraham & Grant R. Martsolf. \(2019\).](#) The Economic Impact of the Expansion of Nurse Practitioner Scope of Practice for Medicaid. [https://doi.org/10.1016/S2155-8256\(19\)30078-X](https://doi.org/10.1016/S2155-8256(19)30078-X).



- [17] National Academies of Sciences, Engineering, and Medicine; National Academy of Medicine; Committee on the Future of Nursing 2020–2030; Flaubert JL, Le Menestrel S, Williams DR, et al., editors. The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity. Washington (DC): National Academies Press (US); 2021 May 11. 3, The Nursing Workforce. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK573922/>.
- [18] Brooten, D., Naylor, M. D., York, R., Brown, L. P., Munro, B. H., Hollingsworth, A. O., Cohen, S. M., Finkler, S., Deatricks, J., & Youngblut, J. M. (2002). Lessons learned from testing the quality cost model of Advanced Practice Nursing (APN) transitional care. *Journal of nursing scholarship : an official publication of Sigma Theta Tau International Honor Society of Nursing*, 34(4), 369–375. <https://doi.org/10.1111/j.1547-5069.2002.00369.x>.
- [19] Delamaire, M. and G. Lafortune (2010), "Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries", *OECD Health Working Papers*, No. 54, OECD Publishing, Paris, <https://doi.org/10.1787/5kmbrcfms5g7-en>.
- [20] Fawaz, Mirna & Hamdan- Mansour, Ayman & Tassi, Ahmad. (2018). Challenges Facing Nursing Education in the Advanced Healthcare Environment. *International Journal of Africa Nursing Sciences*. 9. <https://doi.org/10.1016/j.ijans.2018.10.005>.
- [21] Brooks, P. B., & Fulton, M. E. (2020). Driving high-functioning clinical teams: An advanced practice registered nurse and physician assistant optimization initiative. *Journal of the American Association of Nurse Practitioners*, 32(6), 476–487. <https://doi.org/10.1097/JXX.0000000000000415>.
- [22] Kurtzman, E. T., & Barnow, B. S. (2017). A Comparison of Nurse Practitioners, Physician Assistants, and Primary Care Physicians' Patterns of Practice and Quality of Care in Health Centers. *Medical care*, 55(6), 615–622. <https://doi.org/10.1097/MLR.0000000000000689>.
- [23] Laurant, M., van der Biezen, M., Wijers, N., Watananirun, K., Kontopantelis, E., & van Vught, A. J. (2018). Nurses as substitutes for doctors in primary care. *The Cochrane database of systematic reviews*, 7(7), CD001271. <https://doi.org/10.1002/14651858.CD001271.pub3>.
- [24] Maier, C. B., & Aiken, L. H. (2016). Task shifting from physicians to nurses in primary care in 39 countries: a cross-country comparative study. *European journal of public health*, 26(6), 927–934. <https://doi.org/10.1093/eurpub/ckw098>.
- [25] Newhouse, R. P., Stanik-Hutt, J., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., Wilson, R. F., Fountain, L., Steinwachs, D. M., Heindel, L., & Weiner, J. P. (2011). Advanced practice nurse outcomes 1990-2008: a systematic review. *Nursing economics*, 29(5), 230–251.
- [26] Sheer, B., & Wong, F. K. (2008). The development of advanced nursing practice globally. *Journal of nursing scholarship : an official publication of Sigma Theta Tau International Honor Society of Nursing*, 40(3), 204–211. <https://doi.org/10.1111/j.1547-5069.2008.00242.x>
- [27] Woo, B. F. Y., Lee, J. X. Y., & Tam, W. W. S. (2017). The impact of the advanced practice nursing role on quality of care, clinical outcomes, patient satisfaction, and cost in the emergency and critical care settings: a systematic review. *Human resources for health*, 15(1), 63. <https://doi.org/10.1186/s12960-017-0237-9>.
- [28] World Health Organization. (2020). State of the world's nursing 2020: Investing in education, jobs and leadership. Geneva: WHO.
- [29] Manion, Amy & Odiaga, Janice. (2014). Health Care Economics and the Advanced Practice Registered Nurse. *Journal of Pediatric Health Care*. 28. <https://doi.org/10.1016/j.pedhc.2014.04.009>.



- [30] Kapu, A. N., Kleinpell, R., & Pilon, B. (2014). Quality and financial impact of adding nurse practitioners to inpatient care teams. *The Journal of nursing administration*, 44(2), 87–96. <https://doi.org/10.1097/NNA.0000000000000031>.
- [31] Abraham, C. M., Norful, A. A., Stone, P. W., & Poghosyan, L. (2019). Cost-Effectiveness of Advanced Practice Nurses Compared to Physician-Led Care for Chronic Diseases: A Systematic Review. *Nursing economics*, 37(6), 293–305.
- [32] Buerhaus, P. I., DesRoches, C. M., Dittus, R., & Donelan, K. (2015). Practice characteristics of primary care nurse practitioners and physicians. *Nursing outlook*, 63(2), 144–153. <https://doi.org/10.1016/j.outlook.2014.08.008>.
- [33] Lopatina, E., Donald, F., DiCenso, A., Martin-Misener, R., Kilpatrick, K., Bryant-Lukosius, D., Carter, N., Reid, K., & Marshall, D. A. (2017). Economic evaluation of nurse practitioner and clinical nurse specialist roles: A methodological review. *International journal of nursing studies*, 72, 71–82. <https://doi.org/10.1016/j.ijnurstu.2017.04.012/>
- [34] Donald, F., Kilpatrick, K., Reid, K., Carter, N., Martin-Misener, R., Bryant-Lukosius, D., Harbman, P., Kaasalainen, S., Marshall, D. A., Charbonneau-Smith, R., Donald, E. E., Lloyd, M., Wickson-Griffiths, A., Yost, J., Baxter, P., Sangster-Gormley, E., Hubleby, P., Laflamme, C., Campbell-Yeo, M., Price, S., ... DiCenso, A. (2014). A systematic review of the cost-effectiveness of nurse practitioners and clinical nurse specialists: what is the quality of the evidence?. *Nursing research and practice*, 2014, 896587. <https://doi.org/10.1155/2014/896587>.
- [35] National Academies of Sciences, Engineering, and Medicine; National Academy of Medicine; Committee on the Future of Nursing 2020–2030; Flaubert JL, Le Menestrel S, Williams DR, et al., editors. The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity. Washington (DC): National Academies Press (US); 2021 May 11. 7, Educating Nurses for the Future. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK573912/>.
- [36] Iglehart J. K. (2013). Expanding the role of advanced nurse practitioners—risks and rewards. *The New England journal of medicine*, 368(20), 1935–1941. <https://doi.org/10.1056/NEJMp1301084>.
- [37] Jennings, N., Clifford, S., Fox, A. R., O'Connell, J., & Gardner, G. (2015). The impact of nurse practitioner services on cost, quality of care, satisfaction and waiting times in the emergency department: a systematic review. *International journal of nursing studies*, 52(1), 421–435. <https://doi.org/10.1016/j.ijnurstu.2014.07.006>.
- [38] Cioffi, J., & Ferguson, L. (2009). Team nursing in acute care settings: nurses' experiences. *Contemporary nurse*, 33(1), 2–12. <https://doi.org/10.5172/conu.33.1.2>.
- [39] Martin-Misener R, Harbman P, Donald F, et al Cost-effectiveness of nurse practitioners in primary and specialised ambulatory care: systematic review. *BMJ Open* 2015;5:e007167. doi: <https://doi.org/10.1136/bmjopen-2014-007167>.
- [40] Griffiths, P., Saville, C., Ball, J., Dall'Ora, C., Meredith, P., Turner, L., & Jones, J. (2023). Costs and cost-effectiveness of improved nurse staffing levels and skill mix in acute hospitals: A systematic review. *International journal of nursing studies*, 147, 104601. <https://doi.org/10.1016/j.ijnurstu.2023.104601>.
- [41] Naylor, M. D., & Kurtzman, E. T. (2010). The role of nurse practitioners in reinventing primary care. *Health affairs (Project Hope)*, 29(5), 893–899. <https://doi.org/10.1377/hlthaff.2010.0440>.
- [42] Pulcini, J., Jelic, M., Gul, R., & Loke, A. Y. (2010). An international survey on advanced practice nursing education, practice, and regulation. *Journal of nursing scholarship : an official publication of Sigma Theta Tau International Honor Society of Nursing*, 42(1), 31–39. <https://doi.org/10.1111/j.1547-5069.2009.01322.x>



- [43] Brooten D, Naylor MD, York R, Brown LP, Munro BH, Hollingsworth AO, et al. Lessons learned from testing the quality cost model of Advanced Practice Nursing (APN) transitional care. *J Nurs Scholarsh.* (2002) 34:369–75. doi: <https://doi.org/10.1111/j.1547-5069.2002.00369.x>.
- [44] Carter AJE, Chochinov AH, A. systematic review of the impact of nurse practitioners on cost, quality of care, satisfaction and wait times in the emergency department. *CJEM.* (2007) 9:286–95. doi: <https://doi.org/10.1017/S1481803500015189>.
- [45] Bauernfeind L, Fels M, Dahlmann P, Rester C and Sterr F (2024) The impact of advanced practitioners on patients in acute care—A mini review. *Front. Disaster Emerg. Med.* 2:1399779. doi: <https://doi.org/10.3389/femer.2024.1399779>.
- [46] Sangster-Gormley, E., Martin-Misener, R., & Burge, F. (2013). A case study of nurse practitioner role implementation in primary care: what happens when new roles are introduced?. *BMC nursing*, 12, 1. <https://doi.org/10.1186/1472-6955-12-1>.
- [47] Swan, M., Ferguson, S., Chang, A., Larson, E., & Smaldone, A. (2015). Quality of primary care by advanced practice nurses: a systematic review. *International journal for quality in health care : journal of the International Society for Quality in Health Care*, 27(5), 396–404. <https://doi.org/10.1093/intqhc/mzv054>.
- [48] Tsiachristas, A., Wallenburg, I., Bond, C. M., Elliot, R. F., Busse, R., van Exel, J., Rutten-van Mólken, M. P., de Bont, A., & MUNROS team (2015). Costs and effects of new professional roles: Evidence from a literature review. *Health policy (Amsterdam, Netherlands)*, 119(9), 1176–1187. <https://doi.org/10.1016/j.healthpol.2015.04.001>.
- [49] Wand, T., & White, K. (2007). Examining models of mental health service delivery in the emergency department. *The Australian and New Zealand journal of psychiatry*, 41(10), 784–791. <https://doi.org/10.1080/00048670701579033>.
- [50] Weiss, M. E., Piacentine, L. B., Candela, L., & Bobay, K. L. (2021). Effectiveness of using a simulation combined with online learning approach to develop discharge teaching skills. *Nurse education in practice*, 52, 103024. <https://doi.org/10.1016/j.nepr.2021.103024>.
- [51] Xue, Y., & Intrator, O. (2016). Cultivating the Role of Nurse Practitioners in Providing Primary Care to Vulnerable Populations in an Era of Health-Care Reform. *Policy, politics & nursing practice*, 17(1), 24–31. <https://doi.org/10.1177/1527154416645539>.
- [52] Yakusheva, O., Lindrooth, R., & Weiss, M. (2014). Economic evaluation of the 80% baccalaureate nurse workforce recommendation: a patient-level analysis. *Medical care*, 52(10), 864–869. <https://doi.org/10.1097/MLR.000000000000189>.
- [53] Zug, K. E., Cassiani, S. H., Pulcini, J., Garcia, A. B., Aguirre-Boza, F., & Park, J. (2016). Advanced practice nursing in Latin America and the Caribbean: regulation, education and practice. *Revista latino-americana de enfermagem*, 24, e2807. <https://doi.org/10.1590/1518-8345.1615.2807>.
- [54] Zurmehly J. (2007). A qualitative case study review of role transition in community nursing. *Nursing forum*, 42(4), 162–170. <https://doi.org/10.1111/j.1744-6198.2007.00083.x>.
- [55] Zwijnenberg, N. C., & Bours, G. J. (2012). Nurse practitioners and physician assistants in Dutch hospitals: their role, extent of substitution and facilitators and barriers experienced in the reallocation of tasks. *Journal of advanced nursing*, 68(6), 1235–1246. <https://doi.org/10.1111/j.1365-2648.2011.05823.x>.
- [56] Almaze, J. P., Emmamally, W., & Brysiewicz, P. (2023). Barriers and enablers to scholarship for post basic nursing students in clinical service. *Curationis*, 46(1), e1–e7. <https://doi.org/10.4102/curationis.v46i1.2385>.



[57] Roets, Lizeth & Botma, Yvonne & Grobler, Cecilna. (2016). Scholarship in nursing: Degree-prepared nurses versus diploma-prepared nurses. Health SA Gesondheid. 21. 422-430. <https://doi.org/10.4102/hsag.v21i0.1001>.