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Developing a practical framework for the recruitment and retention of radiographers in the public sector of KwaZulu-Natal Province, South Africa

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ABSTRACT

Introduction

There is a notable lack of strategic recruitment and retention initiatives for radiographers in KwaZulu-Natal Province. This is evident in the disproportionate ratio of radiographers to the population they serve and the imbalance between those employed in the public and private healthcare sectors.

Purpose

This study aimed to develop a comprehensive framework to improve the recruitment and retention of public sector radiographers in KwaZulu-Natal by examining relevant policies and regulations, as well as gathering insights from both service-level and managerial radiographers.

Methods

A sequential exploratory mixed-methods approach was employed, incorporating a document review, a cross-sectional survey of a stratified random sample of 220 radiographers, and in-depth interviews with a purposive sample of ten radiography managers from various public hospitals in KwaZulu-Natal. Thematic analysis was used for the document review and interviews with managers, while logistic regression was applied to identify significant predictors of retention in the quantitative data.

Results

The document review revealed that, although policies and procedures for recruitment and retention exist, the radiography profession is poorly regarded within the broader healthcare field. Radiographers are underrepresented in decision-making bodies and lack an advisory board. The intention to leave the profession was significantly influenced by factors such as incentives (p=0.030) and burnout (p=0.007). Participants highlighted several barriers to effective recruitment and retention, including inadequate policy implementation, insufficient support and recognition, and limited opportunities for career advancement.

Conclusion

The proposed framework emphasizes the importance of advocating for the radiography profession in decision-making forums, ensuring the effective implementation and monitoring of recruitment policies, improving the work environment, and enhancing career development pathways for radiographers.

INTRODUCTION

The disease profile in South Africa highlights a growing burden, with an estimated 1,200 new cancer diagnoses daily (Cancer South Africa, 2020). The COVID-19 pandemic has exacerbated this situation, increasing the demand for healthcare services while revealing significant staff shortages. These shortages impact not only patient care but also the training of student radiographers, contributing to longer waiting times and diminished care quality. For example, between 2009 and 2018, the percentage of patients exceeding the six-month radiotherapy waiting time target increased from 2% to 5% (World Health Organization [WHO], 2017). The WHO (2017) predicted that by 2020, non-communicable diseases, including cancer, would account for 60% of the disease burden and 73% of deaths globally. However, these projections did not account for the effects of infectious pandemics like COVID-19. In South Africa, non-communicable diseases are responsible for 43% of recorded deaths (KwaZulu-Natal Department of Health [KZNDOH], 2018a).

The emigration of radiographers from South Africa continues to rise (Khoza et al., 2018), negatively affecting the remaining workforce. Those left behind experience increased workloads and deteriorating working conditions, leading to burnout, work-related stress, and feelings of disenchantment with their profession and the government (Gam et al., 2015; Britton et al., 2017; DeChant et al., 2019). This creates a vicious cycle, as more radiographers decide to leave the profession, exacerbating the shortage. The chances of replacing departing radiographers are slim due to the lack of a robust recruitment and retention strategy within the KZNDOH. Addressing this shortage is critical to maintaining the quality of healthcare in South Africa, making it essential to develop strategies that retain radiographers within the public sector (Britton et al., 2017).

Radiography is an increasingly vital profession, driven by changing disease profiles that require more radiographers in various specialties. It is also recognized as a scarce skill in South Africa (South African Qualifications Authority [SAQA], 2018). However, recruitment has become more challenging due to a moratorium by the KZNDOH on filling vacant positions, either formally through memoranda or informally through prolonged hiring freezes. This can result in potential candidates losing interest in the positions or posts being deleted from the human resources system after remaining vacant for extended periods (KZNDOH, 2018b).

In KwaZulu-Natal, as a cost-control measure, appointments can only be approved by the Office of the Premier and the Finance Member of the Executive Council (MEC), further delaying recruitment (KZNDOH, 2015a). According to the South African Medical Association (2015), freezing posts for physicians, nurses, and allied health professionals like radiographers is short-sighted and detrimental. This approach impacts vulnerable patients, increases litigation costs, and further worsens working conditions. Additionally, the KZNDOH's budgetary constraints and pressure on the Compensation of Employees (COE) continue to hinder the filling of vacant positions (KZNDOH, 2015a). With a 7.4% staff turnover rate and high vacancy rates for radiographers (12.5%), medical specialists (27.7%), professional nurses (10.4%), and pharmacists (10.5%), service delivery is severely impacted (KZNDOH, 2018a). There is a pressing need for a framework addressing the recruitment and retention of radiographers in the KwaZulu-Natal public health sector, as research in this area is limited. This study aims to develop such a framework to address the current challenges.

METHODS

This study employed a sequential mixed-methods approach. In the first stage, all relevant policies and strategies concerning the recruitment and retention of healthcare personnel, particularly radiographers, from 1994 to 2020 were reviewed. This review included the National Health Plans and documents developed by the KwaZulu-Natal Department of Health (KZNDOH), with a focus on population needs and the demand for radiographers.

Following the document review, a cross-sectional survey was conducted using self-administered, anonymous questionnaires among a stratified random sample of 220 radiographers. Additionally, in-depth interviews were conducted with a purposive sample of 10 radiography

managers working at different public hospitals in KwaZulu-Natal.

Thematic analysis was used to analyze the document review and interviews. For the quantitative data, a Chi-squared test was employed to examine associations between the dependent variable (retention) and independent variables such as working conditions, work environment, leadership, incentives, employee engagement, and burnout. Logistic regression was then used to identify significant predictors of retention, with p-values less than 0.05 considered statistically significant. A framework for recruitment and retention was developed based on the findings.

Ethical Considerations

Ethical approval for the study was obtained from the Umgungundlovu Health Ethics Research Board. Permission to conduct the study was also received from the KZNDOH and institutional management. Participation was voluntary, and informed consent was obtained from all participants. Anonymity and confidentiality were maintained throughout the study.

RESULTS AND DISCUSSION

Documentary Evidence and Recruitment Challenges

Phase 1 of the study revealed that, although recruitment and retention policies for public sector radiographers in KwaZulu-Natal exist, they largely fail during the implementation stage due to budget constraints. The Human Resource (HR) policy is a generalized document covering all public service health employees, lacking specific focus on the radiography profession. Van Ryneveld et al. (2020) identified several governance and structural issues, including the inadequate structure of the national HRH unit, weak regulatory procedures, poor collaboration among stakeholders, and gaps in policy evaluation and implementation. These issues hinder the effective recruitment and retention of healthcare workers, particularly radiographers. Additionally, there is uncertainty about whether these policies are regularly updated to address emerging needs, such as the ratio of radiographers per 100,000 population. The National Human Resource for Health Strategy (2012/13–2019/20) noted that radiographers do not have advisory boards at the provincial or national levels. This lack of representation leads to unfair treatment, poor support from the Department of Health (DoH), and inadequate recognition and management of the radiography profession (Khoza et al., 2020).

Radiographers Leaving the Public Sector

Phase 2 of the study demonstrated that many radiographers are leaving the public sector, either to emigrate or to join the private sector, where better working conditions and incentives are available. The study found a significant association between the intention to leave and factors such as incentives ($p = .030$) and burnout ($p = .007$). Respondents cited poor implementation of recruitment policies, lack of recognition, and limited career growth as key barriers to retention. As Karera et al. (2022) noted, employee satisfaction with their work environment greatly influences their decision to stay or leave.

Decision-Maker Impact and Organisational Culture

Phase 3 revealed that decision-makers unfamiliar with the radiography environment play a critical role in the recruitment and retention crisis. This lack of understanding leads to insufficient support and recognition for radiographers, contributing to their desire to leave the public sector and further exacerbating staffing shortages. Johnson et al. (2017) emphasized that organizational strategies are often driven by the existing culture, and for an organization to be innovative, its cultural practices and strategies must align with the specific needs of the profession (Nightingale, 2018).

Framework Development

The gaps identified in this study led to the development of a recruitment and retention framework for public sector radiographers in KwaZulu-Natal. The proposed framework highlights the need for advocacy within decision-making bodies, effective policy implementation with monitoring, strategies to improve working conditions, and clear career progression for radiographers.

Proposed Recruitment and Retention Framework

Effective hiring and retention strategies, as outlined by Rose and Janse van Rensburg-Bonthuyzen (2015), can help reduce staff vacancies, cut costs, improve care quality, and ensure continuous service delivery. The shortage of radiographers exacerbates the strain on South Africa's already weakened healthcare system. Based on a critical

literature review and findings from the research questionnaires and interviews, it is clear that public hospitals must address the factors influencing radiographers' intention to leave by aligning supply and demand and involving radiographers in policy-making processes.

Theoretical Foundations

This study draws upon three traditional theories and four models to support its focus, providing a framework for addressing recruitment and retention challenges among radiographers. Lewin (1992) suggested that theoretical structures are essential for interpreting phenomena and developing science beyond mere fact collection. Similarly, theories enable healthcare systems to manage the dynamic factors affecting recruitment and retention.

Comparative Frameworks and Lessons Learned

Shipalana (2019) conducted a study in Limpopo, highlighting the recruitment and retention challenges faced by healthcare professionals, particularly medical specialists and doctors. The high vacancy rates in regional and tertiary hospitals reflected the health sector's inability to attract and retain talent. Abelsen et al. (2020) proposed a recruitment and retention framework for rural healthcare organizations that could offer valuable lessons for KwaZulu-Natal. This framework includes nine key strategic elements, grouped into three main tasks: plan, recruit, and retain. These elements ensure that population needs are regularly assessed, the right service models are in place, and the appropriate recruits are targeted. Additionally, retention strategies focus on team building, education for current and future professionals, and maintaining the appeal of these professions. Success requires problem identification, focused investment, collaboration among agencies, regular evaluation, and community involvement.

The recruitment and retention framework developed in this study is supported by eight process steps illustrated in **Figure 1**.

The framework was developed using a mixed-method approach, examining recruitment and retention from various perspectives and methodologies. This collaborative process incorporated insights from document reviews, questionnaires completed by radiographers, and interviews with radiography managers. The goal was to identify the factors affecting the recruitment and retention of radiographers in KwaZulu-Natal (KZN) Province, leading to the creation of a comprehensive framework. The primary audience for this guideline includes national authorities across various sectors—provincial and district health authorities, finance, education, labour, development, and public service—due to their direct and indirect impact on the radiography workforce. Additionally, health service managers, human resources personnel, educational institutions, radiography managers, employers, and professional associations, including trade unions, will benefit from this framework.

Step 1: *Establish a Radiography Advisory Board*

Each profession should be guided by clear objectives, which can be facilitated by creating an advisory board. The growing demand, technological advancements, and need for safe, high-quality service delivery justify assessing radiological workforce capacity. In alignment with WHO guidelines, this board will help clarify human resource planning goals and identify challenges within the radiography sector. The advisory board will support strategic planning, promote data-driven decisions, and align radiographers' needs with workforce development plans. According to Expectancy Theory, individuals join organizations with specific expectations that influence their reactions within the environment. Radiographers, like other professionals, seek benefits such as competitive salaries, job security, and career advancement opportunities. When these needs are unmet, they may consider leaving. Addressing essential needs, such as competitive salaries and safe working conditions, along with providing emotional support through open-door policies and offering recognition, will help retain radiographers.

Step 2: *Clarify Stakeholder Involvement*

This step emphasizes the critical role stakeholders, such as the Department of Health (DOH), regulatory boards, universities, and policymakers, play in recruitment and retention. Effective recruitment, orientation, deployment, and staff development practices are necessary for creating a positive working environment. These stakeholders should ensure transparent recruitment procedures, support workforce satisfaction through training and career

development opportunities, and remove retention barriers. Retention models, such as the Zinger Model, emphasize authentic recognition and the importance of supporting employees' personal and professional growth. Organizations should balance roles to prevent overload and promote engagement. Involving radiographers in decision-making, providing career development opportunities, and prioritizing their well-being will encourage long-term retention.

Step 3: *Gather Radiography Recruitment and Retention Data*

This step focuses on collecting and analyzing data to better understand the radiography workforce environment. Data on recruitment, retention, demographics, and workload are essential for planning and policy development. Accurate, timely, and disaggregated data are critical for workforce planning at both national and provincial levels. Herzberg's two-factor theory, which distinguishes between job satisfaction factors (e.g., achievement, recognition) and dissatisfaction factors (e.g., working conditions, salary), informs the identification of recruitment and retention challenges. Addressing these factors will help develop strategies to enhance job satisfaction while minimizing dissatisfaction.

Step 4: *Improve Performance Management, Leadership, and Career Development*

Effective performance management, leadership, and career development are vital for improving radiography workforce retention. Organizations should implement comprehensive performance appraisal systems, promote productivity improvement initiatives, and evaluate leadership practices within radiography. Treating radiographers with respect, involving them in decision-making, and offering opportunities for professional development are crucial for maintaining job satisfaction and reducing turnover.

Step 5: *Develop a Comprehensive Activity List for Recruitment and Retention*

Developing a list of recruitment and retention activities requires collaboration with the advisory board and stakeholders. The World Health Organization (WHO) recommends evaluating staffing needs based on workload and distribution across healthcare facilities. Key considerations include identifying staff shortages, assessing workload distribution, and evaluating the impact of staffing on care quality. By analyzing these factors, a recruitment and retention strategy that addresses the specific needs of the radiography workforce can be developed.

Step 6: *Plan the Execution of Activity Findings*

To successfully implement recruitment and retention activities, a multisector partnership is essential. Interventions should be selected based on their relevance, feasibility, and impact within KZN Province. Engaging radiographers and other stakeholders in the design and implementation process will ensure that the activities align with local needs. Monitoring and evaluating these interventions will be crucial for long-term success. The Employee Retention Connection model emphasizes recognizing and rewarding employee achievements to boost morale and retention. Integrated Retention Systems focus on critical factors, such as recognition, flexibility, and training, which are important for sustaining employee engagement.

Step 7: *Implement Recruitment and Retention Strategies*

Effective implementation of recruitment and retention strategies requires strong collaboration among stakeholders and enhanced management capabilities. Strengthening human resource management, improving working conditions, and ensuring fair recruitment practices will help create a supportive environment for radiographers. Investments in career development programs, including training and mentorship, will aid in retaining radiographers, particularly at the local level. Expectancy Theory can help in understanding radiographers' needs, and addressing these needs can prevent turnover. Establishing workplaces that attract and retain radiographers will lead to improved healthcare outcomes and reduced staff replacement costs.

Step 8: *Monitor and Evaluate the Framework*

The final step involves monitoring and evaluating the framework to ensure its continued relevance. Engaging stakeholders, radiographers, regulatory bodies, and educational institutions in this process is essential. Identifying success indicators early on will facilitate progress tracking. WHO's guidelines for evaluating recruitment and retention strategies can offer valuable

metrics for assessing the effectiveness of these interventions. Regular updates to continuing education and professional development programs are also necessary to keep the framework aligned with the evolving needs of radiographers.

Limitations of the Study

This study has several limitations. First, the data was limited to KwaZulu-Natal, which may not fully represent radiography workforce difficulties in other South African provinces, limiting the generalizability of the findings. The study relied on self-reported data from radiographers and managers, potentially introducing bias as responses may have been influenced by social desirability or personal experiences. Additionally, the cross-sectional nature of the study precluded tracking recruitment and retention patterns over time, making it challenging to capture changing workforce dynamics that could be better understood through a longitudinal approach. Moreover, the scope of data sources was limited to document reviews, questionnaires, and interviews; the absence of observational studies and nationwide surveys may constrain the depth of insight into recruitment and retention issues. Finally, resource limitations and logistical challenges restricted the inclusion of more stakeholders, particularly at the district level, which may have obscured the roles of local health authorities and other entities in addressing workforce challenges.

CONCLUSION

The study reveals that while relevant policies are in place, greater effort is needed in the monitoring and evaluation of both the policies and their implementation. The recruitment process is slow and not tailored to the specific needs of radiography, resulting in suboptimal service delivery. Retention strategies are also perceived as insufficient, with multiple factors influencing radiographers' intentions to leave the public sector. Furthermore, radiographers require better representation and advocacy within decision-making bodies.

Recommendations

To foster lifelong learning and professional growth, the Department of Health (DoH) should collaborate with stakeholders, including radiologists, radiography managers, professional regulatory agencies, and educational institutions. Continuing education and professional development programs should be adapted to the specific needs of radiographers, incorporating insights from specialists and experienced professionals in recruitment and retention. Universities and the Health Professions Council of South Africa (HPCSA) should align health education with the practical skills and knowledge essential for service delivery, career pathways, and professional advancement. Strengthening collaboration between the national, provincial, and district levels would facilitate faster information sharing, training, and support, especially during health emergencies.

The HPCSA should ensure that expanded scopes of practice for radiographers are regulated and compensated, with appropriate supervision, support, and referral mechanisms in place. This framework would establish clear communication channels among different healthcare professionals, enhancing the quality of care, patient safety, and continuity of care. Additionally, cross-sector collaboration—including health, education, finance, government, and labour—should be bolstered to support the training and employment of new radiographers. Finally, the framework would help secure safe and conducive working environments for radiographers, providing incentives that reflect their specific contexts and working conditions.

Ethics Approval: Ethical approval for the study was obtained from the Umgungundlovu Health Ethics Research Board.

Conflicts of Interest: None declared.

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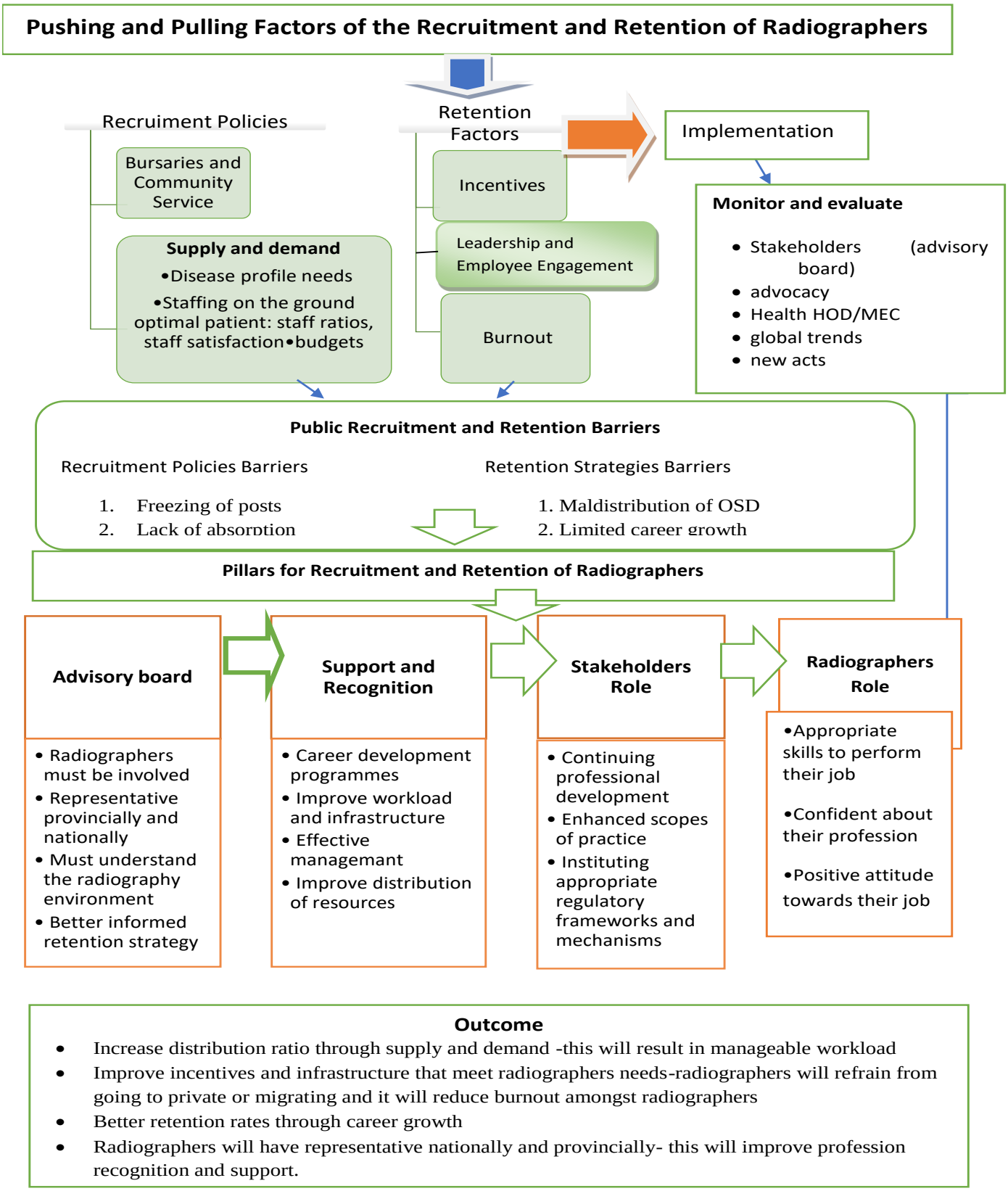
Figure 1:
Proposed process steps for the recruitment and retention framework



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