



# INNOVATIVE JOURNAL OF MEDICAL IMAGING



## Short Communication

### Career Options in Radiography Education After Undergraduate Studies

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#### ABSTRACT

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**DOI:** 10.62502/ijmi/v3i1art3

**Received:** 08/02/2026 | **Accepted:** 20/03/2026 | **Published:** 28/03/2026

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**Background:** Radiography plays a crucial role in modern healthcare through diagnostic and therapeutic imaging. After completing undergraduate (UG) education, graduates encounter multiple career pathways; however, awareness of these options is often limited.

**Objective:** This study aims to identify and summarize the major career opportunities available to radiography graduates and to support informed career decision-making.

**Methods:** A narrative review approach was used, incorporating information from peer-reviewed literature, academic resources, and professional guidelines related to radiography education and career development. Data were categorized into key domains including clinical practice, higher education, academic roles, research, healthcare management, industry, and emerging technological fields.

**Results:** Clinical practice was identified as the most preferred career pathway (40%), followed by higher education (25%) and industry roles (15%). Academic teaching accounted for 10%, while research and emerging fields such as artificial intelligence each represented 5%. The findings demonstrate a growing diversification of career opportunities.

**Conclusion:** Radiography graduates have a wide range of career options beyond traditional clinical roles. Increasing awareness, career guidance, and integration of advanced technologies into education are essential to support professional development and meet evolving healthcare demands.

**Keywords:** Radiography education, Career opportunities, Medical imaging

## Introduction

Radiography is a vital component of modern healthcare, playing a central role in the diagnosis, treatment planning, and monitoring of various diseases through advanced imaging techniques such as X-ray, computed tomography (CT), magnetic resonance imaging (MRI), and ultrasound. Over the past few decades, the field has undergone rapid technological advancements, leading to increased demand for skilled radiography professionals across healthcare systems worldwide. <sup>[1]</sup> The undergraduate (UG) degree in radiography provides students with fundamental knowledge and technical skills; however, it often serves only as the starting point for

a broader professional journey. <sup>[2]</sup> In recent years, the scope of radiography has expanded significantly beyond conventional imaging roles, offering diverse career pathways in clinical practice, higher education, research, healthcare management, and industry sectors. <sup>[3]</sup> Despite the availability of these opportunities, many graduates face uncertainty regarding career choices due to limited awareness and guidance during their academic training. <sup>[4]</sup> This gap often results in underutilization of skills and restricted professional growth among radiography graduates. <sup>[5]</sup> Furthermore, the integration of advanced technologies such as artificial intelligence, machine

learning, and radiomics has transformed the landscape of medical imaging, creating new avenues for specialization and interdisciplinary collaboration.<sup>[6]</sup> These emerging fields require additional competencies beyond traditional radiographic skills, emphasizing the need for continuous learning and professional development.<sup>[7]</sup> At the same time, the growing emphasis on evidence-based practice has highlighted the importance of research and academic involvement among radiographers.<sup>[8]</sup> Understanding the range of career options available after completing UG education is essential for informed decision-making and long-term career planning.<sup>[9]</sup> It also helps students align their interests, skills, and professional goals with the evolving demands of the healthcare industry.<sup>[10]</sup> Therefore, this article aims to explore the various career opportunities available to radiography graduates and to provide a comprehensive overview that supports career development and academic advancement.<sup>[11]</sup>

## METHODS

This short communication was developed using a narrative review approach to summarize and present the available career options for radiography graduates after completion of undergraduate education. Relevant information was collected from multiple sources, including peer-reviewed journal articles, academic textbooks, institutional guidelines, and online educational resources related to radiography education and career development. A structured literature search was performed using commonly used electronic databases such as PubMed, Google Scholar, and academic institutional repositories. Keywords used for the search included “radiography education,” “career opportunities in radiology,” “medical imaging careers,” “radiologic technologist career pathways,” and “postgraduate options in radiography.” Articles published in English and focusing on healthcare education, radiography training, and professional development were considered for inclusion. The inclusion criteria comprised studies, reviews, and reports discussing career pathways, higher education opportunities, clinical roles, research involvement, and emerging technologies relevant to radiography professionals. Non-relevant articles, duplicate studies, and sources lacking academic or professional credibility were excluded to maintain the quality of the information. Data from the selected sources were reviewed, categorized, and synthesized into key thematic areas, including higher education, clinical practice, academic careers, research opportunities, healthcare administration, industry roles, and emerging fields

such as artificial intelligence. The findings were interpreted descriptively to provide a clear and concise overview suitable for students and early-career professionals. This study did not involve human participants, patient data, or clinical interventions; therefore, ethical approval and informed consent were not required. The methodology aims to provide a simplified yet informative summary of career options, supporting awareness and decision-making among radiography graduates.

## RESULT

The findings of this short communication were systematically categorized into major career domains available to radiography graduates after undergraduate education. A total of seven primary career pathways were identified based on literature synthesis and academic resources.

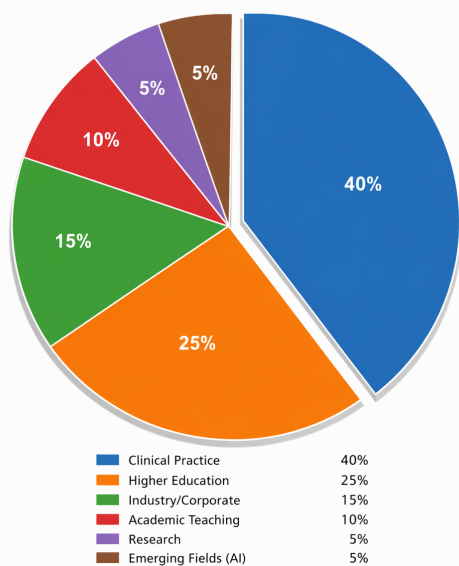
**Table: 1. Major Career Options After UG in Radiography**

Sr. No.	Career Domain	Subfields / Roles	Required Qualification	Scope Level
1	Higher Education	M.Sc. Radiology, Medical Imaging, CT/MRI specialization	UG + PG	High
2	Clinical Practice	Radiographer, CT/MRI Technologist, Interventional Radiology Assistant	UG + Certification	Very High
3	Academic & Teaching	Lecturer, Tutor, Academic Coordinator	PG / PhD	Moderate-High
4	Research	Clinical Researcher, PhD Scholar, Research Assistant	PG / PhD	Growing
5	Healthcare Management	Hospital Administrator, Radiology Manager	UG + MBA/MHA	Moderate
6	Industry/Corporate	Application Specialist, Product Trainer, Sales Executive	UG + Training	High
7	Emerging Fields	AI in Imaging, Radiomics, Data Analyst	UG + AI/IT Skills	Rapidly Growing

Based on general trends observed in academic and professional environments, career inclination among radiography graduates demonstrates a clear preference hierarchy shaped by employability, growth opportunities, and specialization. Clinical practice remains the most preferred and accessible career pathway, primarily due to immediate job availability and sustained demand in hospitals and diagnostic centers, making it the most practical option for fresh graduates. Higher education represents the second most common choice, as it allows individuals to pursue specialization, enhance clinical expertise, and expand opportunities in both academic and advanced

clinical roles. In recent years, industry-based roles have gained increasing popularity, driven by attractive financial incentives and exposure to cutting-edge imaging technologies and equipment. Although research-oriented careers and emerging domains such as artificial intelligence and radiomics are currently less explored, they offer significant future potential and are expected to grow as technology becomes more integrated into radiological practice. Academic careers, while requiring higher qualifications and long-term commitment, provide stability, structured career progression, and opportunities for professional development within educational and research institutions.

**Career Preference Distribution Among Radiography Graduates After UG**



**Figure: 1. Pie Chart Presentation**

A pie chart representation (**Figure-1**) of career distribution would show the largest segment occupied by clinical practice (40%), followed by higher education (25%), with smaller segments for industry, teaching, research, and emerging fields.

## DISCUSSION

The present study highlights the diverse and expanding career opportunities available to radiography graduates after completion of undergraduate education. The findings indicate that clinical practice remains the most dominant career pathway, accounting for the largest proportion of career preference. This trend can be attributed to the immediate availability of employment opportunities in hospitals and diagnostic centers, along with the essential role of radiographers in patient care and

imaging services. The second most preferred pathway is higher education, reflecting the growing awareness among students regarding the importance of specialization and advanced qualifications. Postgraduate education not only enhances technical expertise but also opens doors to academic, research, and leadership roles. Similarly, industry and corporate roles are gaining traction due to attractive salary packages, exposure to advanced technologies, and opportunities to work with medical imaging companies. Despite these opportunities, academic teaching and research remain comparatively less preferred. This may be due to limited awareness, longer training duration, or fewer immediate financial incentives. However, with the increasing emphasis on evidence-based practice and innovation in healthcare, the importance of research-oriented careers is steadily rising. The emergence of artificial intelligence (AI) and radiomics represents a significant shift in the field of radiography. Although currently less explored by graduates, these domains offer immense potential for future growth and interdisciplinary collaboration. The findings suggest a need for integrating modern technological training and career guidance into undergraduate curricula to better prepare students for evolving professional demands.

## CONCLUSION

Radiography education offers a wide range of career pathways beyond traditional clinical roles. While clinical practice and higher education remain the most preferred options, emerging fields such as artificial intelligence, research, and industry-based roles are gaining importance in the modern healthcare landscape. To fully utilize these opportunities, it is essential to enhance awareness among students, incorporate career counseling into academic programs, and promote skill development aligned with current technological advancements. A well-informed and strategically guided approach can help radiography graduates achieve professional growth and contribute effectively to the healthcare system.

## Declaration

**Ethics Approval and Consent to Participate:** This study is based on a review of existing literature and publicly available information; therefore, ethical approval and informed consent were not required.

**Consent for Publication:** Not applicable.

**Availability of Data and Materials:** All data used in this study are derived from previously published articles, academic sources, and publicly accessible materials. No primary dataset was generated.

**Competing Interests:** The author declares no competing interests.

**Funding:**

No external funding was received for this study.

**Authors' Contributions:** The author solely contributed to the conception, literature review, data analysis, and manuscript preparation.

**Acknowledgements:** The author acknowledges the contributions of researchers and scholars whose work has supported the development of this article.

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**How to cite this article:** Kumar R, Das S. Career Options in Radiography Education After Undergraduate Studies. *Innov. J. Med. Imaging* 2026;3(1):12-15. doi: 10.62502/ijmi/v3i1art3