

# FACTORS INFLUENCING RADIOLOGY RESIDENT FELLOWSHIP TRAINING AND PRACTICE PREFERENCES IN PAKISTAN

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## ABSTRACT

**PURPOSE:** The study aimed to examine the postresidency plans of Pakistani radiology residents and factors influencing their fellowship choices and practice preferences. **METHODS:** Ethics approval was obtained from Radiological Society of Pakistan. Survey was given to all residents attending the 38<sup>th</sup> annual radiology conference of RSP, held from 25<sup>th</sup>-27<sup>th</sup> November, 2022 at Karachi, Pakistan in different scientific sessions. Each survey assessed factors influencing fellowship choices and practice preferences. **RESULTS:** A total of 97 responses were collected from the residents perusing degrees of FCPS (90%) and MCPS (9%) in radiology. According to respondents 80% were ready to do a subspecialty, however 13.4% trainees were still unsure and 6% said no for fellowship. The important factors influencing the trainees to choose a fellowship was personal interest (58%) and enhance employability (57%). The most selected choice for fellowship was women imaging (20.8%), followed by neuroradiology (16.4%) and interventional radiology (15.3%). Trainees received the fellowship information majorly from colleagues (43.2%), senior radiologists (39.5%), and university websites (6.1%). Approximately 32.9% planned on practicing outside the country. **CONCLUSIONS:** The results of this study show that most radiology residents in Pakistan are eager to pursue fellowship training. The results, we hope, will further motivate us to change where we practice, how we practice, and how we train. If we performed further surveys that considered the variables influencing the selection of fellowship training programs, we would learn more about the subspecialty preferences of radiology residents.

**Key Words:** Radiology Fellow; Training; Practice Preference; Pakistan

## Introduction

The current generation of radiology residents will determine how radiology develops in Pakistan for the foreseeable future. More students are training in radiology as it becomes more specialised.<sup>1</sup>

Sub specialization entails putting intellectual energy

into in-depth study of a more limited and focused portion of a specialty. A distinct body of knowledge that cannot be included in the standard radiology curriculum must be included in the radiology specialization. Additionally, it must be uniquely applicable

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and supported by proof of the superior patient care a subspecialist's skill set can provide, as well as structured formal training with benefits that are immediately obvious and do not conflict with the current general radiology training or other radiology subspecialties.<sup>2</sup>

At Columbia University, the first radiology fellowship was established in 1959. There has been a dramatic rise in the percentage of radiology residents undertaking fellowship training since the then. For instance, in 1984, just 8% of radiology residents in the United States sought fellowship training, rising to 52% in 1990 and 85% in 2000. The most popular fellowships, according to a recent assessment of radiology residents in the United States, were neuroradiology (22%), body imaging (21%), musculoskeletal (17%), and interventional radiology (13%). Information on residents is scarce.<sup>1</sup>

In the past, there have been ups and downs in the demand for radiology jobs. There are now a lot of open positions in radiology, and over the coming years, more positions are anticipated to become available.<sup>3</sup> The decision to pursue fellowship is complex and frequently a personal one, but the consequences clearly have a significant impact on our area of expertise. Important factors determining radiology subspecialties include perceptions of employment marketability and job availability.

The choice of a fellowship, however, may also be influenced by a number of additional considerations and views, such as salary, geographic restrictions, call requirements, and interactions between patients and doctors.<sup>3</sup>

The goal of this study is to look at Pakistani radiology residents' post-residency plans, specifically in the areas of fellowship training and practice choices. This study will specifically quantify and evaluate variables affecting radiology residents' preferences for fellowships, preferred locations for fellowship training, and interest in academic practice and research. The findings of this study will offer a general profile of the country's radiology residents, which might aid fellowship programs, and other countries in luring top candidates and serving a crucial function in upcoming fellowship recruitment tactics.<sup>1</sup>

## Method

Ethics approval was obtained from Radiological Society of Pakistan. Survey was given to all residents

attending the 38<sup>th</sup> RSP annual conference held from 25<sup>th</sup>-27<sup>th</sup> November, 2022 at Moven Pick Hotel, Karachi, Pakistan.

A paper survey was given which was to be filled by the radiology residents only.

The survey was collected at the end of the day. Participants were informed that each survey was anonymous and the data collected would be used for research purposes only. The survey assessed the proportion of radiology residents who planned on pursuing fellowship training. In addition, the survey assessed factors that influenced radiology residents to pursue specific fellowships, such as enhanced employability, personal interest, and the influence of mentors. Radiology residents' desired practice location were also be examined.

## Results

A total of 97 responses (50%) were obtained from the 194 trainees that were surveyed.

All respondents who indicated fellowship preferences were included in analyses; 6 respondents reported no fellowship preferences were thereby excluded. Among these 59 (60.8%) were females and 39 (40.2%) were males. 88 (90%) pursuing the FCPS radiology degree, rest were practicing other degrees (Chart 1). More than 50% (30+17) of respondents were in the third or fourth year of residency.

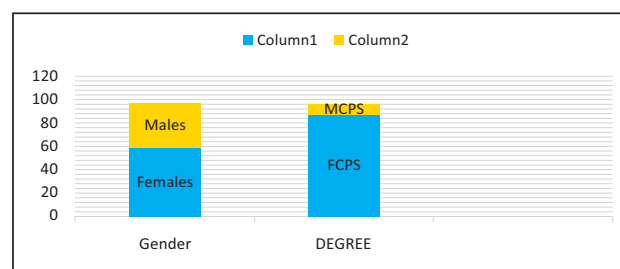
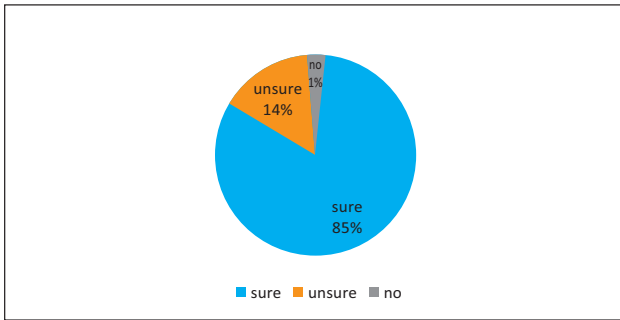


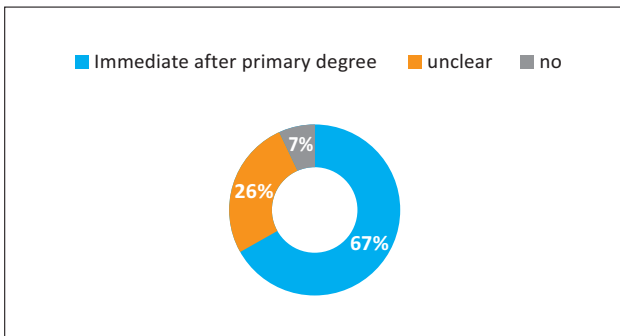
Chart 1: Demographics and trainings programme

In total of 97 respondents, 78 (80.4%) were sure that they will pursue a fellowship, however 13 (13.4%) were unsure about it. 6 candidates (6.1%) denied for pursuing fellowship and were not included in the study, hence making a total of involved respondents as 91, (Chart 2).



**Chart 2:** Residents persuasion of fellowship

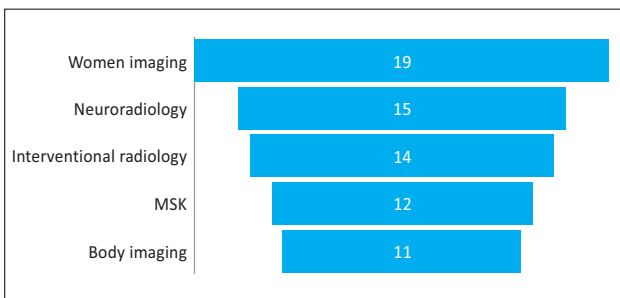
Among those 91 respondents, 61.8% of respondents stated they were prepared to pursue a subspecialty immediately after receiving their first degree, but 30.9% said they were still unclear (majority being second and third years) and 6% said they would not pursue a fellowship immediately, (ref Chart 3).



**Chart 3:** Fellowship timings

The majority 43% and 37% of trainees agrees and strongly agree on the value of fellowship after completing the primary degrees.

The most selected choice for fellowship was women imaging (20.8%), followed by neuroradiology (16.4%) and interventional radiology (15.3%), (Chart 4).



**Chart 4:** Fellowship choices n=91

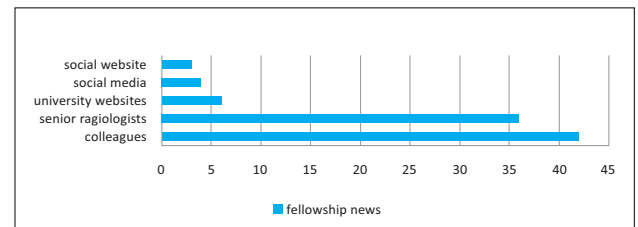
Trainees received the fellowship information majorly from colleagues (43.2%), senior radiologists (40.2%), and university websites (6.1%). Approximately 31.9% planned on practicing outside the country. On asking about the number of seats that should be raised for CPSP recognized fellowship 97% (89) candidate answered in agreement (Chart 5).

The personal interest (58%) and increased employability (57%) were significant considerations in the decision to seek a fellowship.

81 residents (89.0%) were agreed upon exchange program outside Pakistan if given the opportunity. 32.9% thought that they will do their fellowship outside Pakistan and 20.8% selected in province but different institute than their parent institute while 15.3% wanted in the same institute and 9.8% wanted in the same province.

46.1% of the residents were in favor of 2-year fellowship program, however 43.9% voted for 1-year fellowship program. Among the participants, majority 61% gave answer in favor of face to face / physical fellowship program, 31.8% were in favor of hybrid fellowship, online was favored by 6.5% of residents.

Upon asking the fellowship program flexibility 57.4% of residents choose to have a flexible fellowship program while 27.4% chose for rigid program and 15.3% don't know about it.



**Chart 5:** Fellowship news

## Discussion

Residents can train in many subspecialties, all of which have their own challenges and differ in approach. Traditionally, the third-year resident is faced with the decision of which subspecialty to study. Not only does he or she have to make the critical decision of which subspecialty to study, but he or she must also make that decision in the face of a rapidly changing job market.

According to the research, trainees in radiology in

Pakistan have similar interests and experience the same motivating and impeding factors when pursuing subspecialty training. In Pakistan, unlike other nations, women currently make up the majority of radiology students. Radiologists from Pakistan travel abroad for training, and many of them might not come back once they find more promising careers. Our study is based on fellowship preferences and factors influencing the fellowship selection on residents of the current era.

Radiologists in practice validated the growing trend of sub specialization in radiology through surveys. According to reports, 28% of radiologists identified as experts in 1995. A whopping 50% said they have completed a fellowship, up 13% since 1990.<sup>4</sup>

In a prior study by Ng et al.,<sup>5</sup> the criteria that were deemed to have the biggest effects were fascinating work, employment availability, and work hours and/or on call schedule. However, in the end, fellowship training has an impact on the ability to perform medical services, the work environment, research, and innovation in both general and subspecialty practice settings.

In contrast to studies conducted in Saudi Arabia, West Africa, and the US,<sup>6,7,8</sup> the majority of trainees in our study (60.8%) were female coinciding with a study done in Sudan.<sup>9</sup>

## FELLOWSHIP SELECTION

It's critical to comprehend the fellowship preferences and future practice locations. The three most popular subspecialties in our survey were women imaging (20.8%), neuroradiology (16.4%); and interventional radiology (15.3%) these findings are contradictory to the parent article and a study conducted in Saudi Arabia,<sup>10</sup> where interventional radiology was rated as top most. The possible reason for women imaging to be the highest rated, can be the larger number of females in our study and large number of female related problems in third world countries. These findings are also in line with studies conducted in Singapore and the UK, where neuroradiology was among the top three selected subspecialties.<sup>11,12</sup> Additionally, it was discovered that neuroradiology and interventional radiology were the trainee s top preferences in West Africa.<sup>7</sup>

Pediatrics and nuclear medicine were the least chosen one may be due to lack of structured training in pediatrics

and exposure to radiation in nuclear medicine, consistent with a study conducted in Sudan.<sup>9</sup>

## INFORMTAION OF FELLOWSHIP

The survey's findings show that colleagues (43.2%) and senior radiologists (40.2%) are the main sources of information for residents when it comes to fellowships. Less students got their knowledge from unofficial sources like websites and social media. With this knowledge, fellowship program administrators could think about adding these elements into future fellowship recruitment techniques, such as creating mentorship programs and user-friendly websites to enhance the methods of informing residents.

Residents could gain from and be guided by a formal mentoring program as they navigate the radiology training program, fellowship options, and chances for future practice. One of the Canadian institutions offer a formal peer-to-peer mentoring program where PGY1 residents are paired with PGY3 residents. In addition, the PGY3 residents are paired with a staff radiologist mentor based on their subspecialty interests so they can seek guidance on potential research projects, fellowships, and prospects for future practice.<sup>1</sup>

According to a recent research by the Association of Program Directors in Radiology, just 52% of program directors thought that residents had actually identified mentors, even though 85% of program directors agreed that it is crucial for residents to have mentors.<sup>13</sup>

## FELLOWSHIP PROGRAM

Applications like skype, teams, google meet, zoom, and go to meeting are being used as virtual platforms for lectures and teaching sessions in the COVID 19 pandemic period. A recent meta-analysis of randomized controlled trials 14 reported on the efficacy of webinars as virtual learning platforms. Despite having the option of face-to-face/physical fellowship (61%), a sizable majority of participants selected virtual program (31.8%) as a preference. These results imply that the residents are currently being influenced by a trend of virtual implications of online learning platforms in the health profession.

## IMPACT FACTOR:

Numerous motivating causes for radiologists to pursue additional fellowship training have been noted in the literature; some are personal, such the potential for

bettering one's career prospects, while others are work-related.<sup>2</sup> What has influenced the most for a choice of fellowship amongst the students. The current situation of the country and ongoing inflation, different options were given to the students and multiple choices could be made from it. The majority were inclined towards personal interest and enhanced employability, following current fellows, following family and personal factors and interest in academic career. This was in concordance with a study done in USA to see the change in factors influencing the fellowship choices among residents in 2018.<sup>15</sup> According to Yen et al.<sup>16</sup> the most significant motivating elements that affected medical student's decision to choose a medical specialization were work-life balance, enthusiasm in the field, and gratifying daily work. The employment market, wages, and prestige were less significant extrinsic influences. This relates to the idea that being selected for a fellowship based on a "area of strong personal interest" was and still is the single most crucial consideration.<sup>17</sup>

## Conclusion

The results of this study show that most radiology residents in Pakistan are eager to pursue fellowship training. The results, we hope, will further motivate us to change where we practice, how we practice, and how we train. If we performed further surveys that considered the variables influencing the selection of fellowship training programs, we would learn more about the subspecialty preferences of radiology residents.

Local initiatives that provide subspecialisation might stop the exodus of radiologists from Pakistan. When creating subspecialty training programs in Pakistan, professionals should use their understanding of the elements that influence decision-making within the radiology subspecialty and their knowledge of these aspects as a guide. This study is the first of its kind to be conducted in Pakistan, to the best of our knowledge.

**Conflict of Interest:** None

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