

Perceptions of Oncology as a Career Choice Among the Early Career Doctors in Pakistan

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Abstract

Background: The lack of oncologists is a growing global concern. In Pakistan the scarcity of oncologists compared to the growing cancer burden is alarming, with approximately only 125 trained oncologists available for a population above 201 million. Furthermore, oncology is a lower ranked professional field of choice among Pakistani medical students. This study aims to determine the opinions of young doctors regarding oncology and the factors affecting their preferences in order to devise strategies to attract more doctors into the field.

Methods: A cross-sectional study using non-probability sampling technique was conducted across various public and private sectors hospitals of Lahore, Pakistan, from March to November 2019. 300 doctors were interviewed via a close-ended, pre-validated questionnaire, which included demographic details as well as assessment of perception regarding oncology on the basis of workplace environment, financial and emotional aspects, nature of work and scope of field. Data was analyzed by SPSS 23 with quantitative variables presented as mean \pm S.D, and qualitative variables presented as frequency and percentages. The influence of perceptions on 'Oncology as a Career Choice' was determined by binary logistic regression analysis.

Results: Out of 300, a huge majority of 72.7% chose not to prefer oncology as a career if given a chance to decide. The positive perceptions about oncology in descending order were: progressive field (85.3%), gender-neutral specialty (77%), stable working hours (61%), financially healthy specialty (47.7%) and work-family balance (46.7%). Among the top negative perceptions were: lack of oncologic facilities in Pakistani hospitals (70%), radiation exposure (66%), need for private practice (60.7%), poor patient prognosis (56.7%), high patient load (55.7%) and depression (54.3%). The most influential factors in favor of/against the choice were late presentation of patients leading to poor prognosis, cancer survivor/death in the family, already having an oncologist in the family, type of medical school attended, stage of medical career and future plan to settle abroad.

Conclusion: Alignment of the environment in oncology with the preferences of young doctors and addressing their concerns are key to attracting doctors to this field. This can minimize the doctor-population discrepancy in this field in our country.

Background

Despite the advancements in medicine, cancer remains both a mystery and a challenge to the healthcare system due to its increasing rates and poor prognosis. A worldwide research conducted by GLOBOCAN stated that there were 18.1 million new cancer cases, 9.6 million cancer deaths and 44 million people living with cancer (within 5 years of diagnosis) in 2018 worldwide.¹

Pakistan had 173 thousand new cancer cases, more than 118 thousand deaths each year and more than 310 thousand five-year prevalence as of GLOBOCAN report 2018.¹ Because of relatively poor preventive measures and lack of awareness, Pakistani population is predisposed to suspected risk factors for

cancer² like household solid fuel use, physical inactivity, obesity, tobacco, viral infections like hepatitis, poor lifestyle conditions etc. The dilemma that Pakistan faces is the scarcity of oncologists in comparison to the cancer burden in Pakistan. The density of physicians per 10,000 population is 7.8³ while the global standards require around 20 physicians per 10,000 population. The number of oncologists among these already scarce physicians is alarmingly low.⁴ There are approximately 26 facilities only, including the private and public sector, to manage such a huge number of new and existing cancer patients across the country. For a population of above 201 million¹, approximately 125 trained oncologists are available all over the country with different levels of qualification in oncology.⁴

Over the years, the medical trainees and students have developed a clichéd mindset due to which choosing oncology is considered sailing against the wind. During a research conducted in 2011, oncology was nowhere to be found in the top fifteen specialty preferences of Pakistani medical students.⁵ The influencing factors behind a medical student's career choice are very diverse.^{6,7} While there have been some researches on the career preferences of Pakistani medical students,^{5,8} almost none have been solely dedicated to determine their perception of oncology as a career. The rationale of this study is to divulge the general impression of oncology as a specialty among the early career doctors who are still to choose their specialty (House Officers/Internees) or are in early part of their postgraduate training (FCPS/MD/MS) (refer to Fig. 1 for timeline of medical career in Pakistan) and analyze factors which drive doctors away from or bring them into oncology. This will help identify areas that need to be improved in order to align the trainees' preferences and perceptions with the environment of oncology departments and attract a greater fraction of emerging doctors into the field leading to willful inductions in this emerging specialty.

Materials And Methods

A cross sectional survey was conducted in various public and private hospitals of Lahore. The total duration of the study was 9 months, from March 2019 to November 2019. The data was collected from 300 doctors using non-probability sampling technique. Data was only collected from those individuals who gave informed consent to participate in the study and the responses were kept anonymous. The procedure involved using a self-administered, easy-to-interpret questionnaire. The questionnaire was developed in English language. Eligible participants were medical graduates in their early practice years (from House Job to Postgraduate Trainees) and included both males and females. The Institutional Review Board of King Edward Medical University approved the study, including procedures to protect participants' rights and privacy.

Data was analyzed by SPSS 23. Quantitative variables like age will be presented as mean \pm S.D. Qualitative variables like demographics and perceptions are presented as frequency and percentages. The influence of perceptions on the choice of 'Oncology as a Career Choice' was determined by binary logistic regression analysis.

Results

A total of 300 doctors in their early career years participated in the study (54% females; 46% males). The mean age of participants was 25.45 ± 2.277 . 32% of the total participants were in their postgraduate training while 68% were doing their house jobs. The predominant notion (Table 1) was against the preference of oncology as a career choice with 72.7% participants saying that if given the opportunity, they would not choose oncology as a career while only 27.3% said that they would. Except for some minor variations, there was alignment in views of males and females with reference to the field of oncology.

With regards to the workplace environment (Table 2), participants believed that oncology had stable working hours, availability of good work-family balance and no gender bias. However, it was widely agreed upon that the field has a huge patient load and that the country lacks adequate facilities for this high number. When the emotional aspect of oncology was evaluated (Table 2), it was seen that most of the people believed that oncology is a depressing field. An overwhelming majority considered oncology to be a progressive and research-oriented specialty with a good scope. The nature of the work was considered a health risk and a possible barrier to choosing oncology by many young doctors, and the late presentation/poor prognosis of cancer patients repelled a huge faction of doctors away from the field.

Regression analysis (Fig. 2) shows that a high rate of late presentation and poor prognosis of cancer patients ($\beta = -0.460$, $p < 0.01$) discourages doctors from choosing oncology as a career choice. It shows that those young doctors who have had a cancer survivor or death in their family ($\beta = 0.340$, $p < 0.05$) prefer to choose oncology more whereas those doctors who do not have any cancer patient in their family are less likely to take it up as a career. It further illustrates that those doctors who have an oncologist in their family ($\beta = 1.504$, $p < 0.05$) have a greater likelihood to choose oncology as a career in future.

The likelihood ratio shows that there is a higher tendency in students of government medical schools ($\beta = -0.834$, $p < 0.10$) to prefer oncology as a career as compared to those of private medical schools. It also indicates that as doctors progress further in their training years i.e. from House Officers/Internees to Postgraduate Trainees, their preference for oncology decreases in comparison to less trained doctors ($\beta = -0.328$, $p < 0.10$). Those doctors who plan on settling abroad ($\beta = 0.469$, $p < 0.10$) are more likely to choose oncology as a career compared to those who plan to live in their home country (Pakistan).

Table 1
Demographics

Variable	N (%)
Gender	138 (46.0%)
•Male	162 (54.0%)
•Female	
Stage of Medical Career	204 (68.0%)
•House Officers/Internees	96 (32.0%)
•Post Graduate Trainees	
Medical School	252 (84.0%)
•Government/Public Sector	48 (16.0%)
•Private/Foreign Sector	
Will prefer oncology in future if given a chance to decide	82 (27.3%)
•Yes	218 (72.7%)
•No	
History of cancer diagnosis or death due to cancer in family	153 (51.0%)
•Yes	111 (37.0%)
•No	36 (12.0%)
•Rather not say	

Table 2
Perceptions of Oncology Among Early Career Doctors in Pakistan

Perception of Oncology as a Career Choice Among Early Career Doctors in Pakistan			
Variable	Agree	Disagree	Neutral
Workplace Environment			
Oncology is a male oriented specialty	31 (10.3%)	231 (77.0%)	38(12.7%)
There is work family balance	140 (46.7%)	53(17.7%)	107 (35.7%)
Working hours are stable	183 (61.0%)	29 (9.7%)	88 (29.3%)
High patient load in oncology in Pakistan	167 (55.7%)	50 (16.7%)	83 (27.7%)
There is lack of proper oncologic facilities in Pakistani hospitals	210 (70.0%)	52 (17.3%)	38(12.7%)
Financial Aspect			
A financially healthy specialty	143 (47.7%)	62 (20.7%)	95 (31.7%)
Will need private practice to suffice financial requirements	182 (60.7%)	49 (16.3%)	69 (23.0%)
Emotional Aspect			
There is depression for doctors in oncology	163 (54.3%)	61 (20.3%)	76 (25.3%)
Long term patient affiliation is energy consuming	110 (36.7%)	117 (39.0%)	73 (24.3%)
Scope of the Field			
Saturation/Less job opportunities in oncology in Pakistan	80 (26.7%)	147 (49.0%)	73 (24.3%)
A progressive and research-oriented field	256 (85.3%)	17 (5.7%)	27 (9.0%)
Nature of the Work			
Radiation exposure is a concern while working in oncology	198 (66.0%)	48 (16.0%)	54 (18.0%)
Poor patient prognosis impacts career choice	170 (56.7%)	72 (24.0%)	58 (19.3%)

Discussion

Scarce literature is available worldwide about the perceptions of medical students or doctors about oncology as a field.⁹ Their decisions about choosing or not choosing oncology in future are likely to be based on or are influenced by their perceptions i.e. what they think of oncology as a career. Since not a lot of students in Pakistan opt for this field as a career⁵, our study aimed to highlight their views, be it their subjective assumptions or actual ground facts. Our results showed that the presence of an oncologist in the family was associated with a preference for oncology in future, provided the merit policies and score implications are ignored. The preference was also higher among House Officers/Internees (versus Postgraduate Trainees), those who planned to work/live abroad in future and those who have had a cancer survivor or death due to cancer in their family. Lack of preference for oncology was found among those who believed that poor patient prognosis can have a negative impact on their career choice.

Oncology is a highly competitive field. The research-oriented nature of the field, the ever-growing literature and the advancements in drugs and new regimens showing up from time to time pose a challenge to oncologists to keep up with the medical literature¹⁰⁻¹⁴. The drive towards distinction, largely gained through substantive research credentials or higher qualifications, the dearth of good jobs and opportunities and the need to 'keep up' are some of the tough experiences described by trained oncologists.¹⁵ While the lack of research trend, facilities and novel treatments in Pakistan might 'ease off' the challenges as compared to those of oncologists working in developed countries, the competitive nature of the field, the shortage of opportunities, peer pressure and the need to excel are nearly universal issues. Majority of the respondents in our study believed that oncology is a highly progressive and challenging specialty (Table 2) but the association of whether or not it impacted their choice was not clear. This is probably a concern because young doctors may either believe that Pakistan lacks these facilities and culture in general or their other negative perceptions outweigh this positive perception in career choice.

The paucity of oncologic workforce is a global problem, extending to developed countries like USA which expects a shortage of 2,550 to 4,080 oncologists between the years 2005 and 2020.¹⁶ The single biggest factor contributing to the discrepancy between supply and demand of oncologic services is the shortage of oncology training slots.¹⁶ Pakistan is no different in terms of this shortage. There are only 20 cancer hospitals and 50 other hospitals which exclusively care for cancer patients. There are only 125 trained oncologists, 25 radiotherapy machines, 6 oncology-centric conferences all over Pakistan and Pakistan is yet to publish an oncology journal.⁴ There is a gross deficit of oncological services in its most populous province 'Punjab', with the ratio of medical oncologists to population being 0.027 per 100, 000.¹⁷ The increasingly competitive nature of oncology as discussed previously, along with lack of substantial research opportunities, inadequate learning avenues like conferences and the inability to stay up-to-date with new medical literature¹⁸ hamper a physician's growth and result in inability to effectively compete with international peers. All these factors when combined with the lack of slots available in Pakistan might explain the association found between preference of oncology as a career and the decision to live or work abroad.

Since the beginning of time, no disease has paralleled cancer in bringing more dread and dismay to the human race. When it embraces an individual, it embraces a family. The suffering is mutual and long lasting.¹⁹ While there has been published work describing these constraints, little is known about its impact in shaping someone's opinion regarding career in the future. Our study found that those who had gone through this toil of cancer, had had a cancer survivor or death due to cancer in their family, were more likely to choose oncology as a career in future. As much as the loss of a loved one leaves you dejected, it may also instill in you the wish to heal the suffering of fellow cancer-stricken or the psychological will to overcome what has defeated you in the past. These might be the same doctors who grow up to believe that the tussle between 'importance of intimacy' and 'art of detachment' in the field of oncology is one of its core quality and uniqueness that draws people into it, according to a qualitative study conducted in Australia on Medical Oncologists in 2016.¹⁵

Lack of preference and more negative perceptions were found among Post Graduate trainees as compared to the House Officers/Internees. This may actually reflect their subjective bias where they see their own field as being 'superior' since they have made up their minds, or it may actually reflect a better understanding, exposure and knowledge about ground facts in oncology working culture, as oncology has been found to have low job satisfaction and high physician burnout.^{13,17,20} House Officers/Internees on the other hand, are either free of this subjective bias or are less likely to have enough exposure so they make 'naive' perceptions.

In a nationwide study, young 'oncologists' in France²¹ listed the following main reasons for choosing a career in oncology: cross-sectional nature, the depth and variety of human relations and the multi-disciplinary field of work. Our study mainly focused on young doctors that are fresh graduates. Following were the most popular positive perceptions about oncology in the descending order: progressive field, gender neutral specialty, stable working hours, financially healthy specialty and work-family balance. The top negative perceptions were lack of oncologic facilities in Pakistani hospitals, radiation exposure, need for private practice, poor patient prognosis, high patient load and depression. The perceptions of male and female doctors were almost aligned with slight variations in the perception of depression and concern for radiation exposure in the field.

Since the study is conducted in a developing country like Pakistan, some of its findings (e.g. lack of facilities) are not comparable to the developed countries with a quality healthcare setup but the majority of findings are generalizable, and the scarcity of oncologists and the ever growing cancer burden is a global problem.^{9,18} The study is unique in the sense that no study in Pakistan or abroad has been solely dedicated to identify the perceptions of majorly 'early' and 'unbiased' career doctors with a considerable focus on oncology.

Implications And Recommendations

Poor patient prognosis, depression and emotional turmoil associated with oncology are factors that are part and parcel of this field and are less likely to be improved by any human, healthcare or governmental

efforts. The factors, however, that can be modified are certainly the ones that need to be addressed. In order of priority, the following issues need to be addressed:

- the availability of facilities in hospitals, which includes therapeutic, diagnostic and research facilities
- the concern of young doctors regarding damage caused by radiation exposure to their health
- monetary incentives to draw more young doctors into oncology
- counselling of doctors on how to cope up with the emotional toll associated with this field, teaching them oncology-specific patient interaction e.g. how to break a news of cancer to a patient and his/her family, training doctors with regards to end-of-life care and palliative treatment in order to improve the quality of life of terminal patients and creating an emotionally stable environment in cancer wards

Alignment of the environment in oncology with the preferences of young doctors and addressing their concerns are key to ensure continued attractiveness in this field, prevent brain drain of future oncologists and minimize the discrepancy between supply and demand of oncologists in our healthcare system.

Conclusion

Those doctors who plan to live abroad in the future, have an oncologist in their family, and have had a cancer survivor or death due to cancer in the family are more likely to choose oncology if given a chance to decide in future. However, those who believe that poor patient prognosis can have a significant impact in their career choice are less likely to prefer oncology. Almost three quarter of respondents preferred not choosing oncology as a career if given a chance to decide. Identifying the reasons behind lack of preference and a comprehensive analysis can be a way forward to deal with cancer burden worldwide and ensure the attractiveness of physicians to this long-deserted field.

Declarations

Ethics approval and consent to participate

This study was approved by the Institutional Review Board of King Edward Medical University (No.174/RC/KEMU; attached in related files) and complied with the ethical principles contained in the Declaration of Helsinki (1964) and its later amendments. Participants were assured that participation was voluntary and they could withdraw at any time. Surety was given that the information would be kept confidential and would only be used for research purposes. Data was collected from those individuals who gave informed consent to participate in the study and it was used solely for research purpose and the responses were kept confidential and anonymous.

Consent for publication

Not applicable

Availability of data and materials

All data generated or analyzed during this study are included in the related files.

Competing interests

The authors declare that they have no competing interests.

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Authors' Contributions

Muhammad Aemaz Ur Rehman: Write up of the article, literature review, referencing and data collection. Held regular team meetings to discuss the progress of the project.

Hareem Farooq: Write up of the article, data collection, data analysis via SPSS, tables and figures compilation, and organizing the article into its final form.

Muhammad Ebaad Ur Rehman: Data collection, data entry/analysis and editing of the article.

Dr Muhammad Mohsin Ali: Editing of manuscript and finding a suitable journal for submission.

Dr Amjad Zafar: Data collection and analysis.

Dr Abbas Khokhar: Supervisor and mentor, framed the research question, reviewed and edited the manuscript in detail.

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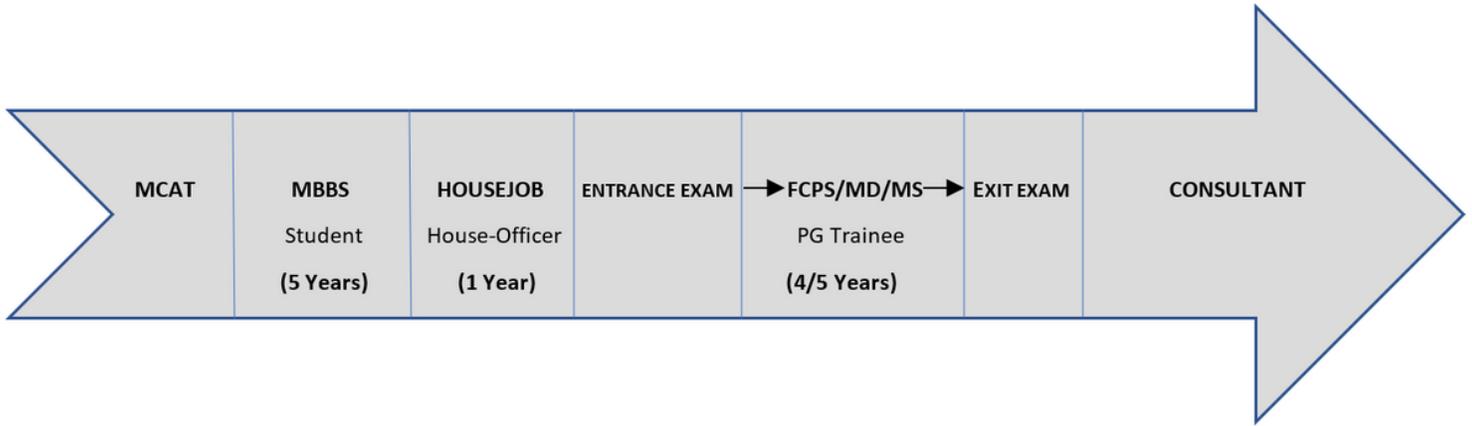
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Figures



Medical Curriculum and Healthcare system in Pakistan. Footnotes: MCAT (Medical Colleges Admission Test): a centralized test held each year by a separate regulatory body of each province to grant admissions to medical colleges across the country. MBBS: (Bachelor of Medicine and Bachelor of Surgery): a standard 5-year graduation programme across the country. HOUSE JOB: A one-year mandatory experience required to get induction into a residency or post-graduation training programme. A person who is doing house job is known as a house officer (HO). FCPS: (Fellow of College of Physicians and Surgeons Pakistan) A post graduate examination consisting of two parts, mandatory to achieve the status of a consultant. A person who is doing residency is called a Postgraduate Trainee (PG). The Consultant Position refers to the following: Senior Registrar→ Assistant Professor→ Associate Professor→ Professor.

Figure 1

Medical Career Timeline in Pakistan

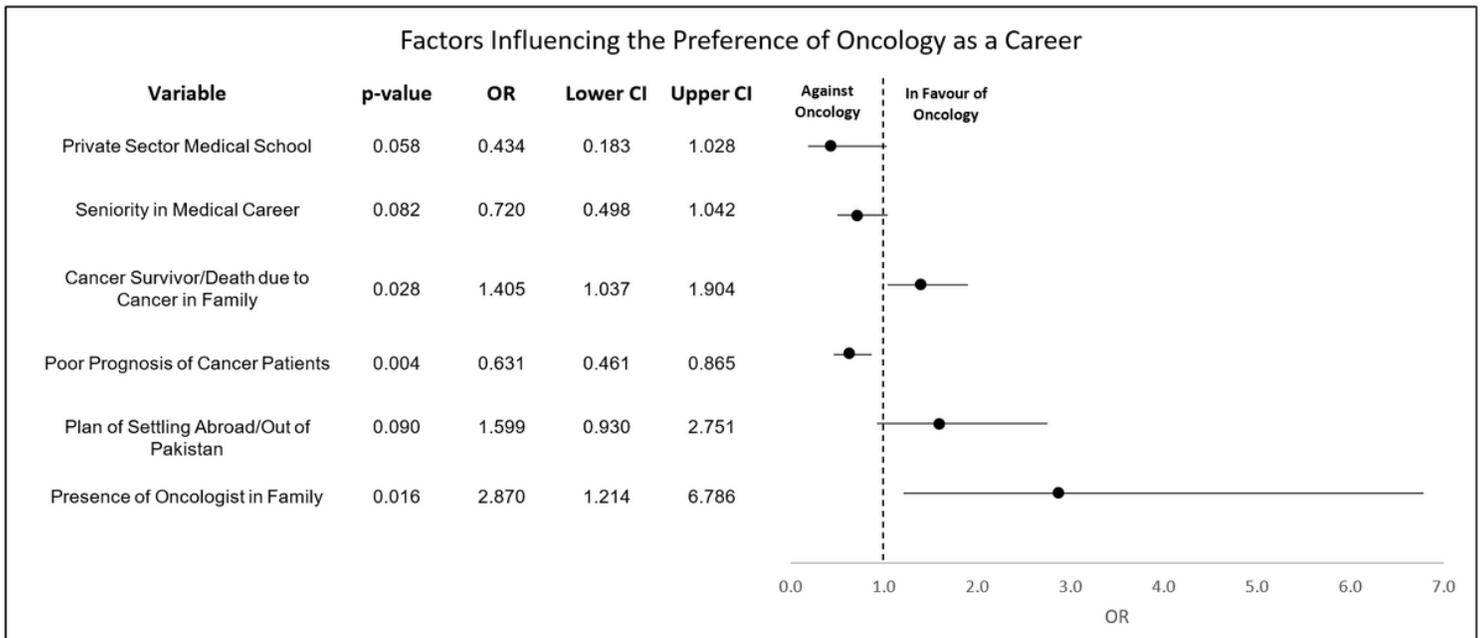


Figure 2

Binary Logistic Regression of Factors Influencing the Preference of Oncology as a Career OR- Odds Ratio
CI- 95% Confidence Interval