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Attitude of Medical students towards Research from a medical college in South Maharashtra

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ABSTRACT

In recent decades, there has been a reduction in the number of graduates from medical schools who choose to pursue a career in scientific research. That has an impact on the profile of graduates, since medical education depends on understanding the formation of scientific evidence. The construction of new knowledge is also hampered by the reduction of medical scientists, whose clinical experience with patients provides an essential step towards medical science evolution.

Objective: The present cross-sectional study sought to identify the interest in research among medical students from a Medical College south Maharashtra. **Method:** Medical students were asked to respond to a self-administered questionnaire that sought to identify the level of knowledge about the importance of scientific research in medical training, and the interest of this population in this element of their training.

Results: 138 medical students from the Third year responded to the questionnaire, and 47.8% stated Plan to continue working with research after graduation. However, only 9.4% of respondents considered research as first in degree of importance to their medical training. The variable "interest in research" showed no statistically significant association with age, gender, presence of physicians in the family, or other prior college courses.

Conclusion: Although interest in research is clearly present among the students, this is still an underexplored element among the population studied. The incorporation of research in the learning process depends on stimulus and guidance until it becomes culturally consolidated as an essential element of the medical training.

Keywords: medical schools, biomedical research, medical education, motivation, learning, career choice

INTRODUCTION

Continued progress in medicine is fundamentally dependent on the training and performance of scientists dedicated to research in the health sciences. Although not limited to such, the participation of medical scientists in research in the medical field represents a valuable contribution, given the clinical orientation of the training given to such professionals. The problem is that even in countries with a renowned calling for science, such as the USA, it is increasingly less common for doctors to decide to focus their careers on scientific activity.(13) A formula that appears to contribute to solving this problem is the early inclusion of these future professionals in the world of scientific research during their academic training.

Furthermore, the intersection between studying for medical practice and academic scientific activity allows the future professional to be placed on a path of cooperative participation in the process of constructing their own medical training, contributing to the development of both their clinical and their scientific skills.

The importance of scientific research for the physician goes beyond their direct involvement with this activity. Modern medicine is based on the search for evidence leading to a specific diagnosis and, for this reason, all physicians should know about research in order to understand the process for the formation of evidence. This close relationship is the basis for certain ideas stating that research fundamentals should be presented during the medical student's undergraduate period, and not just as another career option for those who have obtained their MD.

As most students entering medical school are unaware of how scientific research functions and its importance, interest in scientific activity tends to emerge during the course. The factors leading to the emergence of this interest are unknown. However, the influence of a scientific methodology course(14) and the opportunity to participate in scientific research during the entire degree tend to produce more researchers than limited participation during part of the higher education course.(7)

Objective:

This study has the purpose of describing the interest in research among medical students of Medical College in south Maharashtra

Aim:

To enhancing the educational planning of scientific methodology as subject and discussing its importance to medical training.

Material:

Sampling method: Purposive sampling method

Sample size: 138 of IIIrd MBBS BATCH

Inclusion criteria: willing to participate in study and present on particular day

Exclusion criteria: not willing to participate

This is a descriptive cross-sectional study in which a questionnaire was applied to medical students at the Medical College. All students of Third MBBS were considered eligible to participate. Participation was voluntary, after an explanation about the research and signing the informed consent form. The project was approved by the institution's Ethics Committee.

Method:

The questionnaire contained questions about:

- the respondent's stage of the course;
- what would be the most important item for medical training in the respondent's opinion: Clinical Knowledge(Practice), Theory(Theoretical Knowledge) or Research;
- if they had been in a different undergraduate program previously;
- if they had had contact with scientific research while in the other course;
- if there were physicians in their family;
- if any relative had postgraduate academic titles;
- if the respondent worked or intended to work with scientific research during the undergraduate program;
- if they intended to work with scientific research after graduation;
- if they intended to pursue an academic career;
- if they had any published scientific studies.

Collection of data was held during the academic months of August to September 2017, by supervisors in the scientific methodology course trained specifically for this purpose

Results

The research population consisted of 138 medical students of 150 batch from Medical College in south Maharashtra. The average age of the population was 21.37 years, with a standard deviation of 1.37. 90 participants were male and 48 were female. 12 Students from third years did not participated, as they were absent on day of data collection

As observed in the data presented in Table III, 36.7% of the respondents declared they had an interest in research during their training. A percentage of 47.8% stated they had an interest in continuing research activities after graduation, 52.2% stated they had a desire to pursue an academic career and 2.8% declared that they already had a scientific publication.

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Table I

	Mean	SD	Min	Max
Age	21.37	1.37	19	27

Table II

Sex	No. of participants	%
Male	90	66.7
Female	48	33.3
Total	138	100

Table III

Research work or plan during undergraduate		No. of participants	%	P value
	Yes	66	36.7	Chi-square test=12.8 DF=1 P<0.01
	No	114	63.3	
Plan to continue working with research after graduation				
	Yes	86	47.8	Chi-square test=0.35 DF=1 P>0.05
	No	94	52.2	
Intend to pursue an academic career				
	Yes	94	52.2	Chi-square test=0.35 DF=1, P>0.05
	No	86	47.8	
Most important for medical training				
	Research	17	9.4	Chi-square test=543.33 DF=5 P<0.01
	Theory(Theoretical Knowledge)	1	0.6	
	Practice(Clinical Knowledge)	146	81.1	
	Research & Practice	7	3.9	
	Theory & Practice	3	1.7	
	All	6	3.3	

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Any studies published in scientific journal				
	Yes	5	2.8	Chi-square test=160.55
	No	175	97.2	DF=1, P<0.01

When asked to rank the importance of the items "research", "theory", and "practice" for the medical training, 9.4% of respondents put research in first place. 81.1% of the sample chose practice as the pillar of greatest importance to their training

Considering the variables "research during the undergraduate program" and "interest in research after the course", it was noted that people with an interest during the course also reported that they intend to maintain this interest after they graduate $p<0.01$. The interest during the undergraduate program variable did not present a statistically significant association with gender ($p>0.005$), presence of physicians in the family ($p>0.005$).

Discussion

In this cross-sectional study with students Third years of the medicine course at the Medical College, it was noted that 36% of students are interested in conducting research activities during their training and 47.8% continuing these activities after the conclusion of the course. More than half of the students want to pursue an academic career. Some of the respondents are already effectively involved in the scientific process, and a small proportion of undergraduates (around 2.8%) declared that they already had a scientific publication.

The advancement of scientific studies in the biomedical areas has increased the need to recruit more and more health professionals to the area of research. Preliminary studies demonstrate high levels of interest in research among medical students, with the intention of integrating scientific activity with their curricular activity. However, many of them do not understand the benefits of research during their training period.(10) Despite growing interest over time during the medical course, a decreasing number of new medical researchers have effectively been verified in recent years.

This verification contrasts with the research's findings, which indicate a high level of interest in an academic career among students. This apparent discrepancy may be explained by specific characteristics of new trends of undergraduate medical conferences in India in Recent years. Large numbers of students are attending undergraduate medical conferences and are exposed to new innovative ideas and areas of research.

We also noted that a portion of the respondents to the survey already had published scientific studies. Depending on the characteristics of certain studies in the health area, some of which were undertaken over a long period of time and therefore sometimes involving a rotating team of researchers, we should also consider that other students who were possibly participating in research projects at the time the questionnaire was applied could have their work published by the end of their undergraduate program, or even afterwards.

Most of the students who participate in scientific studies choose research in clinical areas.(16) Previous studies have already shown that medical students in the first years, who are studying basic sciences, are more eager to participate in clinical trials than students carrying out medical rotations(11). Payment is also an important motivational factor for research.

According to a study conducted at Queen's University, interaction with faculty was a motivating factor for 75% of participants. **(3)** Increased faculty interaction was also a motivating factor for Stanford University medical students who participated in research**(15)**

Similarly, third-year medical students at Mayo reported that increased familiarity with a research area allowed them to become more confident about their residency positions. **(9)** Some institutions provide an incentive, such as funding or a formal distinction conferred with the medical degree, to encourage students to engage in research. According

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to at least one report, students perceive a financial incentive as a motivating factor. **(16)** Likewise, the lack of incentives altogether may discourage students from exploring research. **(2)**

For Ley and Rosenberg, there are three obstacles for medical students pursuing an academic career: accumulated debts (with student loans); the long training period; and uncertainty of success. ***(8)*** From the first factor, we can derive the urgency of financial independence, in contrast to the second factor, namely the long path required for building a solid academic career. Considering this, clinical practice seems to be justified as a first-choice option, to the detriment of an academic career, which thereby lacks new aspirants. Thus, there is a need for governments and institutions to develop or improve incentive and benefit programs in order to elicit more physicians as candidates for an academic career.

Some medical students consider scientific research crucial for their future medical activity, **(9)** with 80% of them stating their interest in putting into practice what they learned in their respective study has increased. Better guidance for medical students to conduct scientific studies is also considered crucial, so that they can publish their work and maintain their interest in science. **(6)** Even those who do not wish to pursue an academic career can benefit from the experience of scientific research in their professional practice given that nowadays professionals who know how to search scientific information and to critically evaluate it are essential.

Shib Sekhar Datta et al in JIPMER Pondicherry India in 2012 observed 171 (77.4%) respondents thought research is advantageous for their future career; 159 (71.9%) undergraduates wanted to become doctors in clinical subjects only followed by 24 (10.9%) who wanted to become medical teacher cum researcher in future .However, 33 (14.9%) students were yet to decide their future field of specialization. 187 (84.6%) undergraduates were interested to work in clinical field and almost negligible proportion in para-clinical and none of them were interested to opt for basic sciences in future **(12)**

(5) Jamuna R. Rani et al , SRM Medical College, Kattankulathur, India 2014 About 68.4% of students are interested in participating in research and 9.3% of them actively participated in research projects. Lack of knowledge about research methodology (40.86%), lack of time (39.86%), Lack of guidance (14.2%) and lack of financial support (4.6%) were considered as the obstacles to carry out research projects by the interested students. In conclusion even though a fair number of undergraduate students interested in research, a very few actively participate in research projects. This was probably due to lack of knowledge about research methodology and lack of time.

Analyzing the interest in research seen in the different stages of the medical course, there is a relatively homogeneous and high distribution across all years. This information seems relevant to us, considering that academic research is traditionally an optional and voluntary element in medical training in India, and that the compulsory curricular demands include a high amount of theoretical subjects in the early years, corresponding to the basic and clinical cycles and to mandatory internships, during the internship cycle, during the last years of medical training.

However, the positive data showing the interest in research contrast with the widely known fact that there is a shortage of medical professionals that effectively end up pursuing an academic career. Compared to curricular academic activity, research activity requires proactive effort from the student, as well as greater independence. However, although this independence is a desirable attribute for a researcher, it should be included in a scenario that takes into consideration that the student is still an apprentice and, as such, requires constant direction, especially during their freshman year and while being introduced to research. Therefore, stimulating the emergence of new researchers requires the implementation of affirmative and comprehensive action in order to direct the student at early stages.

Targeted actions have been tested worldwide in order to deal with the declining interest in scientific careers within the medical world. At a faculty of Queen's University in Canada, a study has shown that the inclusion of *a* compulsory elective subject called Critical Investigation in the students' medical curriculum led to positive results in the motivation of such students in relation to research activities. ***(3)*** The results of a similar study at Zagreb University of Medicine in Croatia are in accord, showing that the experience of a compulsory subject, The Principles of Scientific Research in Medicine, led to a positive

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impact on students' perception in relation to science and scientific research.(4)

In Brazil, similar initiatives have been implemented with the aim of encouraging national scientific production. Examples of this are the Science without Borders and Young Talents for Science programs, both implemented by the Brazilian federal government through its research funding agencies, with the purpose of investing in the creation of future researchers, also in the medical field.(1)

Analyzing the results of our research involving this specific population, the importance given to research for medical training draws our attention, as it has been put in last place on a scale of priorities that also include theory and practice as instruments for training. Only 4.7% of respondents put research in the first place in level of importance to their training.

An interest in research does not necessarily imply a choice for a future academic career. When considered well, an interest in research means understanding its importance to medical training, which, in addition to technique, is also questioning and investigative. Furthermore, it means considering a commitment to active participation in educational training itself.

During the analysis of the data collected for the research, the data were cross-referenced in order to find variables that could elucidate the reasons that lead to an interest in research. Among these potential variables, the data relating to an interest in research were cross-referenced with: the gender of the respondent; any previous university degree; the existence of physicians among relatives; and the existence of researchers among relatives. No statistically valid relationship was found in the cross-referencing of the data collected from participating medical students.

The absence of a specific determinant of interest in research reinforces the importance of the issue, given that it implies that occasional factors must be multiple and scattered. It can also be implied that such factors are probably of an essentially individual nature. Thus, a project for encouraging research would also possibly have to operate in a manner that is more personalized to the individual characteristics and demands of the students.

Furthermore, it seems to us that in the diversion away from the career of researcher there is an underlying sociocultural element that identifies the physician mostly as the operator of medicine and less as its developer or instigator. This divergence between clinical practice and investigative practice becomes more and more relevant to the extent in which the benefits of modern medicine, such as genetic and molecular approaches to diseases, require an investigative capacity from the physician within the clinical assessment of such, meaning that advances made by research may cut across the distance between the laboratory and the doctor's office.

Although playing a fundamental role for the initial guidance of those students already inclined toward scientific research, introductory courses specifically aimed at encouraging and focusing on research, such as scientific methodology may play role of stimulating the vocation for research by itself. It seems to us that a change to the content of the subjects in the medical degree, that is, including greater focus on the development of investigative skills, could contribute much to the awakening new scientific vocations among the students.

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