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AN ANALYTICAL STUDY TO EVALUATE THE RESEARCH APTITUDE AMONG THE UNDERGRADUATE STUDENTS OF A MEDICAL COLLEGE IN MUMBAI

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ABSTRACT

Background: Physician-scientist plays key roles in translating progress in basic science into clinical practice. But the recent evidence has shown that there has been a documented decline in the number of physician-scientists in the medical practice. **Material and methods:** An observational, cross-sectional, questionnaire based study conducted in the Department of Pharmacology among 600 undergraduate (UG) students. **Results:** 572 (95.33%) completed questionnaire were Analysed. 181(31.64%) participants knew what scientific research means and what scientific hypothesis is all about was known to 174(30.41%) participants. Only 48 (8.39%) participants knows who gives approval to the scientific study in the institute. 194 (33.91%) participants had idea about scientific writing. 312(54.57%) participants believed that scientific research will contribute to the growing knowledge. 462(80.76%) participants wants to be part of research project during their undergraduate studies. 315(55.24%) participants believes that undergraduate student can plan and conduct a research project by themselves, whereas 432 (75.52%) participants believes that they can write and publish a scientific paper. Only 48 (8.39%) participants want to pursue their career in research. 102 (17.83%) participants have ever participated in a research work. Only 268

(46.85%) participants have ever read a scientific paper and less than that just 78 (13.63%) participants ever wrote a research paper. But majority of the participants, 526 (91.95%) want to read a scientific paper. Conducting workshop and seminar was considered to an important step for creating awareness. **Conclusion:** Our study showed very little knowledge, reluctant attitude and poor practices of the undergraduate students for research.

KEYWORDS: Research, Undergraduate, Medical.

INTRODUCTION

Research in its broadest sense means 'any gathering of data, information and facts for the advancement of knowledge' and is defined as 'a studious inquiry or examination aimed at the discovery and interpretation of facts.[1] It is not only an important component of evidence based medicine but also helps in providing better solution to the existing medical problems as well as tackling new threats to the global health. The outcomes derived from basic and applied research has tremendously benefited the community and has also helped in the development of countries.[2, 3]

Physician-scientist plays key roles in translating progress in basic science into clinical practice. But the recent evidence has shown that there has been a documented decline in the number of physician-scientists in the medical practice.[4] To fill the void of physician-scientists in developing countries, initiatives are being taken to motivate medical students to undertake careers in research.[5] Studies have shown that research experience during medical school is strongly associated with postgraduate research initiatives[6, 7] and future career achievements in academic medicine[8] and also helps students to develop a positive attitude towards research.

According to a recent study there are about 1, 00,000 undergraduate medical students in India at a given point of time, out of them only 0.9% of the students have shown research aptitude.[9] This may be due to the opportunities to under graduate medical students for research are limited and also because it is not an integrated part of medical curriculum.[10,11] Developed countries have research programs for medical students in academics. In many countries, it is mandatory for medical students to have publications to their credit before appearing for final examination.[12, 13] Therefore to promote research in India, several schemes were promoted by the government such as The Kishore Vaigyanik Protsahan Yojana (KVPY), ICMR's Short term Studentship (STS) scheme, the Jawaharlal Nehru Centre for

Advanced Scientific Research's Summer Research Fellowship Programme (JNCASR-SRFP), Fellowship programmes at Tata Institute of Fundamental Research (TIFR), Indian Institute of Science (ISI), and National Centre for Biological Sciences (NCBS), Bengaluru.[14] The motto was to prepare students to meet the challenges of practice by fulfilling their roles of clinicians, educators and clinical researchers. In order to evaluate whether efforts and interventions to promote research are paying off, we need to assess the level of research knowledge, attitudes and practices among these medical students. Therefore this study was planned with the aim to evaluate the aptitude of the undergraduate student for research in India.

MATERIAL AND METHODS

This was an observational, cross-sectional, questionnaire based study conducted in the Department of Pharmacology among 600 undergraduate students of Grant Govt. Medical College & Sir JJ Group of Hospital (GGMC & Sir JJH), Mumbai for a period of two month (November-December 2013) after Obtaining approval from Institutional Ethics committee. GGMC & Sir JJH is the only Government medical college in Mumbai with the intake capacity of 200 per year. Undergraduate medical students pursuing 2nd and 3rd year (Part I & II) of MBBS, who had basic knowledge in pharmacology were included in the study. The only exclusion criterion was unwillingness to participate in the study. Participation in the study was entirely voluntary. The personal right to withdraw from the study at any moment was ensured. Written consent for participation was obtained which was collected separately after it had been signed by the participant in order to avoid personal identification. Thus anonymity and confidentiality of the participants was guaranteed. A well validated structured questionnaire was developed taking guidance from the senior faculty members of the department and also from the previous studies conducted. Questionnaires were divided in three parts to assess the knowledge, attitude and practices of students in the field of clinical research. Thus, a total of 21 questions were developed (9 for Knowledge, 7 for Attitude and 5 for Practices). Students were explained about the nature of study and were handed over the questionnaire form. The data collected was analyzed using descriptive statistics using Microsoft excel software version 2013 and was expressed in percentages.

RESULTS

Of the 600 undergraduate students participated in the study, a total of 572 (95.33%) returned the completed questionnaire and were included in analysis. Of these 572 participants, 312

(54.55%) were females and 260 (45.45%) were males. Age distribution of the participants showed maximum participants, 472(82.51%) were in the age group of 18-20 years. Amongst all the undergraduate students, 197(34.44%) were in 2nd year, 191(33.39%) in 3rd Part I and 184(32.16%) in 3rd Part II of their curriculum. When knowledge of the participants regarding scientific research were analysed (Table 1), only 181(31.64%) participants knew what scientific research actually means and what scientific hypothesis is all about was known to 174(30.41%) participants. Only 48 (8.39%) participants know who gives approval to the scientific study in the institute. When questionnaire containing details of scientific research was analysed, only 194(33.91%) participants knew what the parts of a research proposal are. Amongst all, only 154(26.92%) participant knew whom to call as the principal investigator of the study and just 72 (12.58%) participants knew what important document needs to be maintained while conducting a clinical study. When the knowledge about the scientific writing was assessed, only 194 (33.91%) participants had some idea about scientific writing. PUBMED as the database search engine was known to just 42 (7.16%) participants. When attitude of the participants for scientific research was analysed (Table 2), 312(54.57%) participants believed that scientific research should be done to contribute to the growing knowledge. 438 (76.57%) participants thinks that all the science students, scientist, UG, PG medical students can do a scientific research. Regarding the role of undergraduate students, 510 (89.16%) participant's thought that undergraduate students can participate in research work. Majority of the participants,462(80.76%), wants to be part of research project during their undergraduate studies. 315(55.24%) participants believes that undergraduate student can plan and conduct a research project by themselves, whereas 432 (75.52%) participants believes that they can write and publish a scientific paper. Disappointingly only 48 (8.39%) participants want to pursue their career in research. Amongst all the participants, only 102 (17.83%) participants had ever participated in a research work (Table 3). Only 268 (46.85%) participants have ever read a scientific paper and less than that just 78 (13.63%) participants ever wrote a research paper. But majority of the participants, 526 (91.95%) want to read a scientific paper. Regarding steps for creating awareness of scientific research among them, conducting workshop and seminar was considered to an important step by 358 (62.58%) participants.

Table 1: Knowledge assessment of Medical Research among undergraduate medical students (n=572)

Question	No of correct responses	No of negative responses
What do you understand by the term Scientific Research?	181(31.64%)	391(68.35%)
What do you understand by the term Scientific Hypothesis?	174(30.41%)	398(69.58%)
Before a scientific study is to be commenced, it has to be approved by?	48 (8.39%)	524(91.60%)
The following is NOT a part of the research proposal:	194(33.91%)	378(66.08%)
In a clinical research, the most important document to be maintained by the researcher is	72 (12.58%)	500(87.41%)
In a study, the principal investigator is:	154(26.92%)	418(73.07%)
While writing the introduction in a research paper, all of the following are true, EXCEPT:	194 (33.91%)	378(66.08%)
What is PUBMED?	42 (7.16%)	530(92.65%)

Table 2: Attitude assessment of Medical Research among undergraduate medical students (n=572)

Question	No of correct responses	No of negative responses
Why should scientific research be done?	312(54.57%)	260(45.45%)
Who should do Scientific Research?	438 (76.57%)	134(23.42%)
Do you think undergraduate students should participate in research?	510 (89.16%)	62(10.83%)
Do you think undergraduate students can plan and conduct a research project by themselves?	315(55.24%)	257(44.93%)
Would you like to be a part of a research project during your undergraduate studies?	462(80.76%),	110(19.23%)
Would you like to pursue your career in research?	48 (8.39%)	524(91.60%)
Do you feel that Undergraduate students can write scientific papers and get them published?	432 (75.52%)	140(24.47%)

Table 3: Practice assessment of Medical Research among undergraduate medical students (n=572)

Question	No of correct responses	No of negative responses
Have you ever participated in a research project?	102 (17.83%)	470(82.16%)
Have you ever read a scientific paper?	268 (46.85%)	304(53.14%)
Would you like to read a scientific paper in the future?	526 (91.95%)	46(8.04%)
Have you ever written a scientific paper/ research project report?	78 (13.63%)	494(86.36%)

DISCUSSION

This cross sectional study was carried out not only to evaluate the research aptitude among the undergraduate students but also to create awareness regarding research among the medical students. Even though India has the largest number of recognized medical colleges in the world, with currently 335 medical colleges been recognized by the Medical Council of India (MCI).[15,16] Research, unfortunately, occupies a low rung on the ladder of interest for most medical students. This may be due to the fact that the opportunities in India for an undergraduate medical student to delve into research are few and more theoretical orientation of the curriculum, with very less stress laid on to research.[17] Lack of student conferences and research workshops on how to write and organize research papers is among the reasons for such negative attitudes.[18] Research project during the undergraduate period will not only helps in developing critical thinking but also helps in developing interest in academics as both research and academics are complementary to each other. In India, the MCI has made mandatory for the postgraduate students to conduct a research project during their MD/MS curriculum, so it will always be better to have prior knowledge about the research methodology in their undergraduate life. Our study has not only showed the lacunae in the knowledge of medical students towards research but also showed that there is need to challenge the conventional mode of teaching in the undergraduate period. Even though 510 (89.16%) participants in our study thought that undergraduate students should participate in research, only 102 (17.83%) have actually participated in any research related work. This study was in comparable to the study conducted by K.M. AlGhamdi et al in 2013[19] where 97.1% participant felt that research is an important part of medical education but only 55.3% actually participated in research during medical school. Same results were seen with a Canadian study[18] where 43% stated that they were never involved in research project during their medical school days. But in contrast, a study conducted in Germany[20] showed medical student authored 28% of the publications of one institution, including first authorship in 7.8% of papers. We believe that finding way to overcome the obstacle face by the students to participate in research and change in Medical schools curricula by including teaching of research methodology, allocating specific time for research and by making research experience compulsory for all medical students will help in improving the level of medical research in India. One of such initiative taken by the Board of Governors of the MCI was 'Vision 2015', which contains many notable recommendations for the improvement of the current system including research methodology training as an elective.[21, 22]

CONCLUSION

Our study showed very little knowledge, reluctant attitude and poor practices of the undergraduate students for research. It has also emphasized the importance of research among the undergraduate medical students, as imparting research at the early stage has a bright future. Even the role of government in promoting research among medical students will help in developing the level of research in India.

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