

Are Medical Students Inclined to do Research?"

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ABSTRACT

Background: Medical research at undergraduate level has been given poor importance in developing countries including India. Less incentives, poor resources, lack of benefits has all been the reason for curbing the research interests of the students.

Objective: This research was done to understand if medical students perceived research to be important at an undergraduate level, to understand the reasons for doing research and the benefits obtained from research.

Study Design: Cross sectional study.

Material and Methods: Questionnaires were distributed to medical students studying in second, third, fourth and fifth years in the MBBS course at an undergraduate medical conference and a medical college. Questions were so designed to verify student's ideas on research, their research involvement and their reasons for conducting research. The answers were tabulated,

data analyzed and statistics were made based on their answers.

Statistical Analysis: Frequency and percentage.

Results: Out of the given sample, it was seen that though only 20.9% of the students had credited publications, 81.7% of the students admitted to research being essential to understanding and changing their perception of medicine. Only 38.3% of the sample found research to be cumbersome. 24.3% of the students were involved in research purely for the purpose of acquiring knowledge, 18.3% were pursuing interest in the field and a meager 1.7% were doing research to improve their curriculum vitae.

Conclusion : These results are in conformance with other studies from elsewhere that shows decreased Indian medical student's engagement in researches, compared to those from developed countries, but on par with those from the developing countries.

Keywords: Medical research, Medical students, Curriculum Vitae, Feasibility of research, Institutional help

INTRODUCTION

Research is defined as "The detailed process of gathering information or detailed study to discover and understand new information that would initiate, modify or terminate present understanding." Medical research has been evolving with progressive understanding of diseases processes resulting in the spawning of new drug molecules. Today research helps to expand horizons, create awareness, tweak existing theories and improve treatment.

Students in developed countries have been given ample incentives and grants to propagate research. For example The Medical Student Research Program in Diabetes sponsored by the National Institutes of Health allows medical students to conduct research under an established scientist in the all areas of diabetes [1]. Some countries adopt the teaching of various research methodologies e.g., Epidemiology, biostatistic survey methods in the very first and second year of medical education to arm therefore research work [2]. Basic interest in research work is therefore kindled in developed countries than in the developing countries.

The pubmed survey indicates that the medical doctors of USA lead the list of research publications, unlike Africa where there is no research publication by medical students. The Asian figures are mediocre, but among the Asian group Japan dominates with India making a meager contribution [3]. Is medical research relevant to undergraduate medical students is the commonly asked question. It is absolutely essential, to increase the students interest in that subject, to enhance their critical thinking and sensitize them to health related issues [4].

The researchers in the United Kingdom conducted a study where it was found that the main reason for students to involve themselves in research was to improve their curriculum vitae, while others agreed that this experience was valuable in selection into training programs [5].

Another research stated, the involvement of an institution in research influences the interest of undergraduates [6].

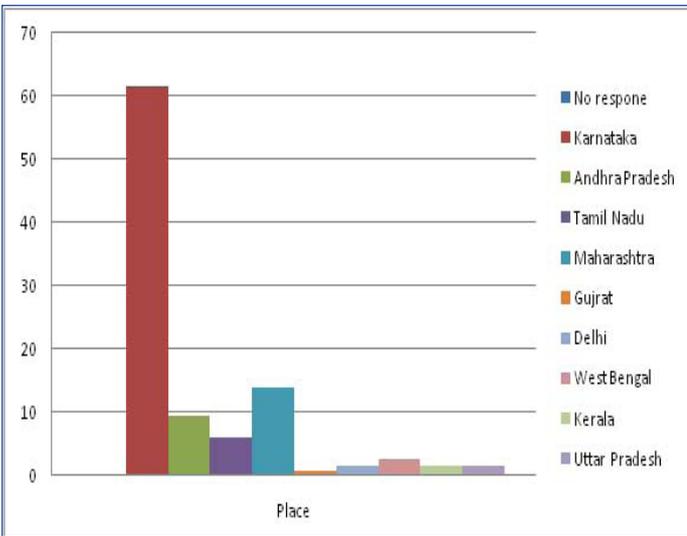
But in the present times, medical field has become more or less static owing to the fact that undergraduate medical students do not opt for a future in the research field. A recent study showed that only 24% of the final year medical students of two private medical colleges showed interest in pursuing research after graduation [7]. Efforts must be made to increase research output, by encouraging student research through various programs like mentored student projects [8]. Another study conducted in three colleges of the United States showed that undergraduate research experience inspired the students to carry out research at a postgraduate level [9].

Our venture was to review the opinion of medical students on research as a base for formulating development of research acumen.

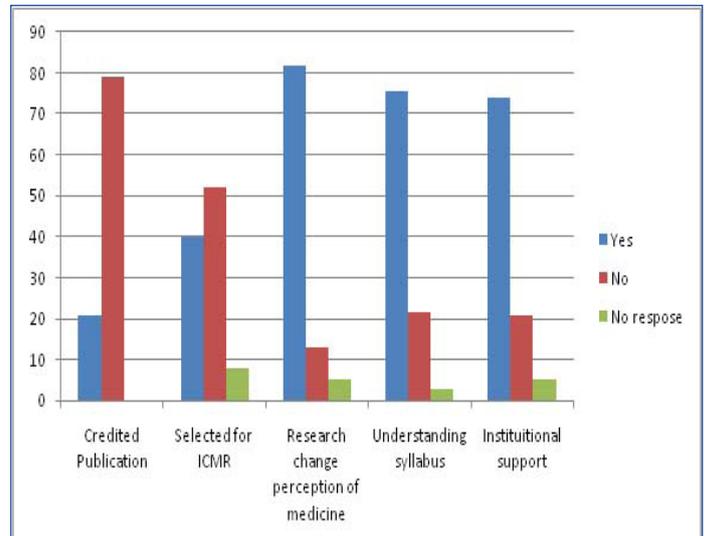
Our objectives are: To determine the perception of medical students on need for research in their undergraduate course. To determine the benefits accrued from research by medical students.

MATERIAL AND METHODS

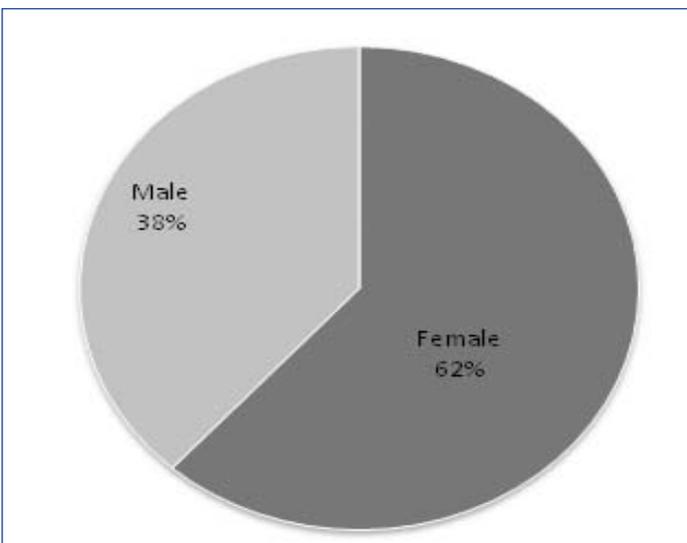
A validated questionnaire was compiled by the investigators. The questionnaire was so designed to check the involvement of the undergraduate students in research, to find the difficulties faced by them while doing research and their reasons for carrying out research. The questionnaires were distributed to the medical students, male and female studying in II, III, IV years and interns of the MBBS course. The questionnaires were given to those-student in a local medical college and those who were engaging in ICMR research projects. The questionnaires were also distributed at an undergraduate medical conference in Mumbai, India where medical undergraduate students were presenting their research papers. The selection of students was so done, that they would be aware of the benefits and fallouts of research.



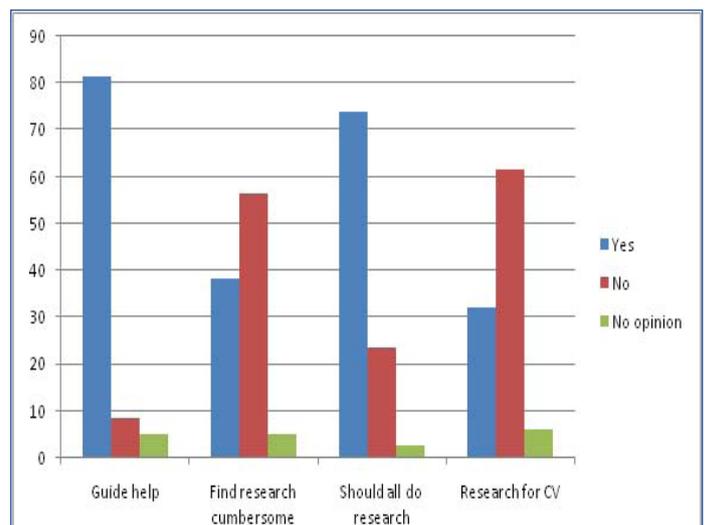
[Table/Fig-1]: Location of the participants of the study



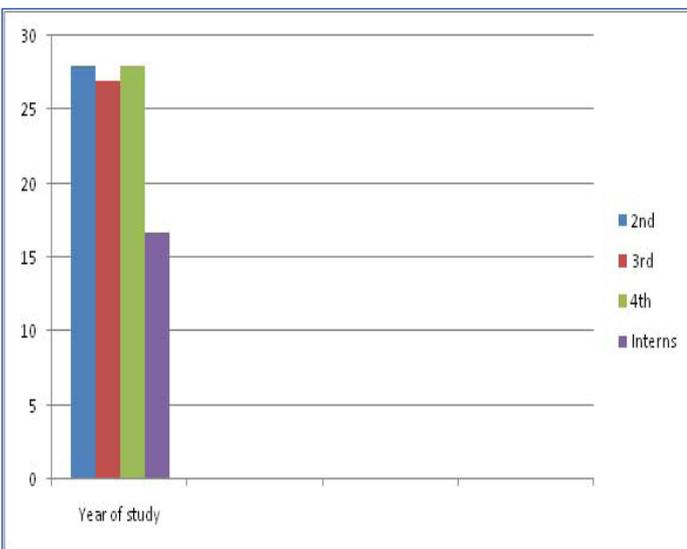
[Table/Fig-4]: Parametric factors affecting student's opinion on research (1)



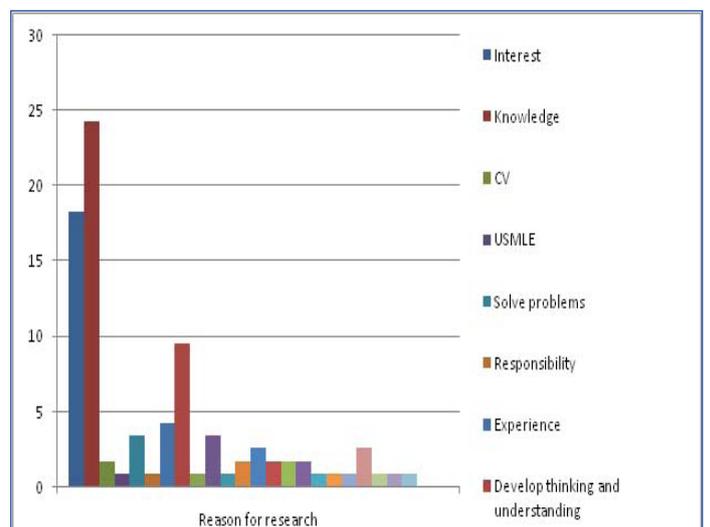
[Table/Fig-2]: Gender distribution of the sample



[Table/Fig-5]: Parametric factors affecting student's opinion on research (2)



[Table/Fig-3]: Year of study of the medical students



[Table/Fig-6]: Reasons cited for pursuing research

RESULT

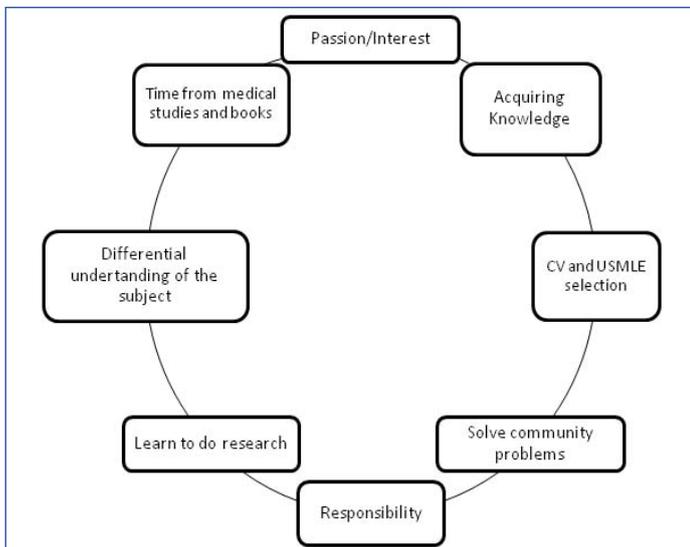
The size of the obtained sample was 114, with the age of the participants ranging between 17 and 22.

The demographic details were also noted which included age, sex, year of study, college and place of study. The students who participated in this study were from different states in India including Karnataka, Andhra Pradesh, Tamil Nadu, Maharashtra, Gujarat, Delhi, West Bengal, Kerala, Uttar Pradesh [Table/Fig-1]. Ethical sanction and informed consent was also obtained. Statistical analysis was made therefrom.

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DISCUSSION

From the observations of our study, as seen in [Table/Fig-2], among the distributed 115 questionnaires, there were 99.13% responders.



[Table/Fig-7]: Reasons cited for pursuing research

Females constituted 61.7% and the mean age of the participants was 20.82 ± 2.3 years.

The sample consisted of students studying the MBBS course, of them students studying in second year were 32, in third year were 31 in fourth year were 32 and interns were 19 in number [Table/Fig-2 and 3].

It has been observed that most of the respondents of our questionnaire have no publications credited to them except of a lucky few (20.9%) [Table/Fig-4]. An Indian study showed ninety one percent of interns reported no research experience in medical school [10]. In the neighbouring Karachi, it was observed that only a meagre forty one percent (41%) had taken part in research though most of them were involved in data collecting and computer work. While in a research conducted in Canada, it has shown that 43% of the student had not made significant research contributions [11]. The Faculty of Health and Medical Sciences at the University of Copenhagen noted that several students were interested in research while a very few of them actually had an research experience [12]. Though students though show a remarkable interest in research, they have very little opportunities, practical knowledge and experience.

Our study showed only forty percent (40%) of our sample have been selected for ICMR-STs projects [Table/Fig-4].

Of the student community only eighty one percent (81.7%) of the responders felt research was essential for medical students to change their perception of medicine [Table/Fig-4]. It has been shown that research has actually helped to understand medicine better. It helps medical students to develop core clinical skills, especially in the areas of diagnostic reasoning, communication and physical examination [13]. In Canada students recognized the other benefits of research which included the development of critical appraisal, information literacy and critical thinking skills [14,15].

Three fourths of the medical students (75.7%) of our study opined that doing research helped understand their subject better. In comparison, in a research by the Kansas City university of Medicine ninety three percent (93%) of the students felt that research improved their medical training by improving the understanding of the subject [16]. In a research work carried out to see the contrast in the ideas between novices and experienced research students it was found that, experienced students reported distinct personal, professional, and cognitive outcomes relative to their novice peers, including a more sophisticated understanding of the process of scientific research. Students also described the trajectories by which they developed not only the intellectual skills necessary to progress in science, but also the behaviors and temperament necessary to be a scientist [17].

The students (73.9%) in our study felt that the institution was mostly conducive to research. In contrast, a study conducted in Brazil showed that students regarded a lack of institutional incentive as the most significant barrier to their participation in research activities [18]. It is seen that research activities carried out by students in countries like England, United States in contrast to developing countries are encouraged much more to carry out researches. Students are given grants and ample support by the institutions to carry out researches in their field of choice. For example The Medical Student Research Program in Diabetes is sponsored by the National Institutes of Health through the NIDDK and allows medical students to conduct research under the guidance of an established scientist in all the areas of diabetes [1]. Another institute helping its students remarkably in the field of research is the Stanford medical college. They have very advanced research programs and publications.

Some students (47.8 %) have admitted that the institution has been seen to offer discount in case of research studies.

As we note the above two question were overlapping in nature; that was purposefully included to chaff away the insincere responses, infact, both the similar sounding questions were responded to diversely.

We found that medical students in our research, agreed (86.1%) that research guides are necessary for undergraduates to conduct research [Table/Fig-5]. Research guides are very essential to the success and completion of every medical research. Guides advice the undergraduate students on the feasibility of the topics, the methodology, the results and the writing of the thesis. The seed for research is own in this mentored involvement into basic research.

Research although an additional task was feasible to the work schedule of a medical student such that both academically and research wise, the students (56.5%) would stand to gain. In the other 34% it was found that students are found to have lack of time, neglect of routine studies and deterioration of clinical skills due to more time being spent on research activities, and inadequate project management [19].

Medical students (73.9%) found it essential for all students to do research. The University of Nottingham medical school has found that 86% of the students felt research or audit experience was very useful for medical students [5].

From our questionnaire, no.15 (Did medical students do research only to upgrade their CVs?) showed the genuine research mentality of the medical students (61.7%) involved in our study [Table/Fig 5]. It has shown through the need for fame or building up curriculum vitae. In a similar study conducted in Kansas University 93% of the medical students believed that medical research would improve their medical training [9]. In contrast, the final year students of Nottingham, UK showed that their main interest in research was improvement of curriculum vitae (CV) (51%). Male students and those involved in extracurricular research were more likely to agree that this experience would influence selection into training programs [5]. The students from our study indicate an alteristic and idealistic goal by having an overwhelming wish to improve the community and aid progress in science.

Our research shows that medical students in India do research at an undergraduate level mainly for the following reasons- Increasing knowledge on the topic, interest in various fields of medicine and to develop thinking and reasoning capacity that would help them in their careers as doctors [Table/Fig-6, 7]. Other researches show that the main reasons students refuse to pursue research at an undergraduate level is due to lack of time, lack of incentives in the form of scholarships, PG selection, etc.

This cross sectional study in India shows medical students have interest in research that is belied by the lack of opportunities. Research is definitely rewarding both professionally and academically. A clear

integrated and lucid understanding of medicine is the immediate fallout of research. The increased and indepth understanding of medicine would boost the confidence and academic excellence of medical students. The personality development of a researcher-inculcating patience, tolerance and perseverance is often seen when involved in collaborative research projects. Our study conclusively reiterates the importance and need for research at an undergraduate level and the medical students are in agreement.

CONCLUSION

This study is aimed at understanding the medical student's idea of research, feasibility for research carrying out in the institution, their reasons to do research and their research acumen. Questionnaires were distributed to undergraduates, at an undergraduate medical conference and a medical college. The answers were tabulated and statistical analysis of the data was obtained. We found that the students are warming up to the idea of undergraduate research. Students in India were gradually making use of the limited facility available to them and conducting small researches. Students are found to recognize the importance of medical research in the undergraduate stage, and are found to have the zeal to carry out medical researches to find new things, solve community based medical problems in addition to updating their CV. This is in conformance with other studies from elsewhere that shows decreased Indian medical student's engagement in researches, compared to those from developed countries, but on par with those from the developing countries.

REFERENCES

- [1] NIDDK medical student research programme in diabetes. Available from <http://medicalstudentdiabetesresearch.org/>
- [2] Ahmad F, Zehra N, Omair A, Anjum Q. Students' opinion regarding application of Epidemiology, Biostatistics and Survey Methodology courses in medical research. *J Pak Med Assoc.* 2009 May;59(5):307-10.
- [3] Vinod Scaria. Whisking research into medical curriculum. Available from: <http://calicutmedicaljournal.info/2004/2/1/e1/>.
- [4] Naqvi HA. Students' research: tradition ahead of its time. *J Coll Physicians Surg Pak.* 2010 Oct;20(10):701-2. doi: 10.2010/JCPSP.701702.
- [5] Nikkar-Esfahani A, Jamjoom AA, Fitzgerald JE. Extracurricular participation in research and audit by medical students: opportunities, obstacles, motivation and outcomes. *Med Teach.* 2012;34(5):e317-24. doi: 10.3109/0142159X.2012.670324. *Epub.* 2012 Apr 3.
- [6] Ejaz K, Shamim MS, Shamim MS, Hussain SA. Involvement of medical students and fresh medical graduates of Karachi, Pakistan in research. *J Pak Med Assoc.* 2011 Feb;61(2):115-20.
- [7] Toso A, Ayala MJ, Brunner V, Rodríguez J, Hernández MI, Urquidí C, Mericq V. Interests and perspectives of first and last year medical students. *Rev Med Chil.* 2012 May;140(5):609-15. doi: 10.1590/S0034-98872012000500008.
- [8] Devi V, Abraham RR, Adiga A, Ramnarayan K, Kamath A. Fostering research skills in undergraduate medical students through Mentored Student Projects: Example from an Indian medical school. *Kathmandu University Medical Journal.*
- [9] Segal S, Lloyd T, Houts PS, Stillman PL, Jungas RL, Greer RB. The association between students' research involvement in medical schools and their postgraduate medical activities. *Acad Med.* 1990 Vol: 65:530-3. DOI: 10.1097/00001888-199008000-00010.
- [10] Chaturvedi S, Aggarwal OP (2001) Training interns in population-based research: Learners' feedback from 13 consecutive batches from a medical school in India. *Med Educ.* 35: 585-89.
- [11] Siemens DR, Punnen S, Wong J, Kanji N. A survey on the attitudes towards research in medical school. *BMC Med Educ.* 2010 Jan 22;10:4. doi: 10.1186/1472-6920-10-4.
- [12] Binderup ML, Ete NE, Ovesen C, Madsen MM, Andersen JB, Aabye MG. Research training is inadequate among future doctors. *Ugeskr Laeger.* 2012 Oct 22;174(43):2624-7.
- [13] Conn JJ, Lake FR, McColl GJ, Bilszta JL, Woodward-Kron R. Clinical teaching and learning: from theory and research to application. *Med J Aust.* 2012 May 7;196(8):527.
- [14] Houlden RL, Raja JB, Collier CP, Clark AF, Waugh JM. Medical students' perceptions of an undergraduate research elective. *Med Teach.* 2004 Nov;26(7):659-61.
- [15] Frishman WH (2001) Student research projects and theses: Should they be a requirement for medical school graduation? *Heart Dis.* 3: 140-44.
- [16] Forester JP, McWhorter DL. Medical students' perceptions of medical education research and their roles as participants. *Acad Med.* 2005 Aug;80(8):780-5.
- [17] Thiry H, Weston TJ, Laursen SL, Hunter AB. The benefits of multi-year research experiences: differences in novice and experienced students' reported gains from undergraduate research. *CBE Life Sci Educ.* 2012 Fall;11(3):260-72. doi: 10.1187/cbe.11-11-0098.
- [18] Neilton A de Oliveira, Maurício R Luz, Roberto M Saraiva & Luiz A Alves. Medical Education. 45,7, *Article first published online.* 7 Jun 2011.
- [19] Diez C, Arkenau C, Meyer-Wenttrup F (2000) The German medical dissertation—Time to change? *Acad Med.* 75: 861-63.

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