

Attitude towards research among 4th & 7th semester MBBS students and house surgeons in a Government Medical College in Kerala, India

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Background: The Indian Medical graduate as a lifelong learner, should be familiar with basic clinical and translational research that can be applied for caring patients. They should be made aware that research is so crucial to health care which will help to build a positive attitude towards research.

Objective: To compare the attitude towards research among the MBBS students of 4th & 7th Semester and House surgeons in Government Medical College, Alappuzha during the year 2018.

Materials and Methods: A Cross sectional study was carried out among MBBS students of 4th & 7th Semester and House surgeons. There were 355 participants. Validated Revised Attitude towards Research (R-ATR) scale was used for data collection. **Results:** There were 59% females and 41% males. Mean age was 22.2 with SD 1.7. Total median score was found to be decreasing from 62 to 59 and then to 53 from 4th semester, 7th semester and to interns. Domain wise median score for Usefulness, Anxiety and positive predisposition, were also found to be declining. A higher proportion (77%) agreed to the usefulness of research. Almost half of the study participants perceived research to be anxious and found it stressful and difficult. Positive predisposition was found to be 40.7% to 50.8%. **Conclusion:** There is a change in attitude towards research from 4th semester medical students to house surgeons. Though a high proportion perceives research to be useful, only half of them had positive predisposition towards research. Majority perceive the research process as stressful and anxious.

Keywords: Attitude, House surgeons, MBBS students, Research

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Introduction

Health research is essential to improve health care. Unfortunately, health research has a low priority in the developing world [1]. Student research is dependent on national research activity. Since there is limited research infrastructure in many developing countries, opportunities for medical student research are limited [1]. Government of India recognize health for all as national goal [2].

It expects medical training to produce competent physicians of first contact [2]. The Indian Medical graduate is envisioned to be a lifelong learner who continuously improves his/her skills and knowledge [2].

The Indian Medical Graduate should be able to search and critically evaluate the medical literature and apply the information in care of patients. Graduate should be able to develop a research question and be familiar with basic clinical and translational research as it applies to the care of the patient [2].

Hence the students should be competent to do research not only during Under Graduate training but also during their Post graduate training and in their real practice. It is seen that research programs in medical colleges get a very low priority [1]. There are a numbers of reasons, including lack of funding and manpower resources which are responsible for the poor quality in research-oriented medical education [3].

During their 4thsemester posting in Community Medicine, the undergraduate medical students are trained in research methodology and are required to do group projects. This is evaluated in 7th semester and for their final practical examination. Further exposure to research usually occurs during their Post graduate training period.

Students need to be "sensitized" to research, that is, they should be made aware of why research is so crucial to health care [1]. "Many students tend to confuse research with statistics, which leads many of them to conclude that poor quantitative skills will prevent them from doing well in the course, although quantitative skills are relevant to only part of a research course" [4].

Hence many students may face fears and anxieties in doing research, which are associated with statistics, and hence are reluctant to undertake research in their future professional careers.

Given that evidence-based practices are a cornerstone of the accountability movement, professionals need to demonstrate both their ability to access research-based knowledge as well as their ability to apply that knowledge in real world situations [4].

If students are continuously sensitized and the environment made favourable for research, it will help to build a positive attitude towards research for becoming a competent doctor in future. This study may help to identify the attitude towards research among medical students as they progress from 4th semester through 7th semester to internship which could provide appropriate recommendations for modifying curriculum.

This study is to compare the attitude towards research among the MBBS students of 4th& 7th Semester and House surgeons in Government Medical College, Alappuzha during the year 2018.

Materials and Methods

01. **Study design:** Cross sectional study
 02. **Study settings:** Government TD Medical College, Alappuzha
 03. **Study period:** June & July 2018
 04. **Study population:** All the MBBS students of 4th& 7th Semester and House surgeons
- Exclusion criteria:** Those who were not willing to participate.
05. **Sample Size** -355 participants from all the three groups. (4thsemester 131, 7th semester 124 and House surgeons 100).
 06. **Data Collection Tool** - Validated Revised Attitude towards Research (R-ATR) scale was used to collect data after getting permission from the developer [4]. This scale consists of 13 points in the three domains - Research usefulness, anxiety and positive research predispositions. R - ATR items scoring are in 7 point Likert scale; ranging from strongly disagrees indicated by one to strongly agree as seven.
 07. **Study Variables:** Age
Sex
R - ATR scale.

R-ATR scale consists of 13 items in 3 domains. Research usefulness, Research anxiety, and Positive research predispositions.

Research usefulness domain measures the student's perceptions in reference to how useful they perceived that research would be in their professional lives.

The Research anxiety domain measures the negative feelings of stress and anxiety felt by the students in relation to research. The third domain of Positive research predispositions, measures the existence of positive feelings and interest towards research [4].

08. **Data Collection procedure-** The purpose of the study was explained to the study participants. Written informed consent was obtained from each of them. Questionnaire was distributed and the data was collected. Doubts were cleared by the investigator.

09. **Data Entry and analysis-**Data was entered in MS Excel and analyzed using SPSS- 18 software. Quantitative data were summarized using mean with standard deviation. Qualitative data were summarized with percentage. Normality of data was checked and found to be skewed. Likert scale responses were summarized using median with Inter Quartile Range (IQR). The difference of the scores between the three domains as well as between the three batches were tested using Kruskal Wallis Test. Chi-square test done to find whether there was any significant difference in responses between the batches.

Ethical Consideration: Clearance was obtained from Institutional Research Committee and Institutional Ethical Committee of Government T.D Medical College Alappuzha before commencing the study.

Results

A total of 355 medical students and interns

Table-4: Total and Domain wise R-ATR Score

R-ATR Domain	4thsem		7thsem		HS		Kruskalwallis test	P value
	Median	IQR	Median	IQR	Median	IQR		
Usefulness	24	5	23	5	20	7	28.949	<0.000
Anxiety	21	10	21	9	17	13	9.380	0.009
Positive	20	6	17	7	16	5	29.427	<0.000
Total score	62.00	11	59.00	11	53.50	18	48.130	<0.000

The Likert scale points were grouped in to Agree, Disagree and Neutral. The proportion of study participants who Agree, Disagree and Neutral to

Participated in the study. Majority of the participants were in the age group 22 to 24 years. Mean age of the study population was 22.2 years with SD 1.7 years (Table 1).

Table-1: Age distribution of study participants

Age	Frequency	Percent
19-21	138	38.9
22-24	192	54.1
≥ 25	25	7.0
Total	355	100

Among the study participants 58.6% were female and 41.4% were male [Table 2]

Table-2: Sex wise distribution

Sex	Frequency	Percent
Boys	147	41.4
Girls	208	58.6
Total	355	100

Table-3: Batch wise distribution of study participants (n=355)

Batch	Frequency	Percent
4thSem	131	36.9
7thSem	124	34.9
House Surgeons	100	28.2

Median score with IQR of total R-ATR score and domain scores were calculated separately for 4thsemester, 7th semester medical students and interns [Table 4]. Median of total score for 4th semester students was 62. Median score decreases in 7th semester and for interns.

The domain wise median scores for 3 domains also showed a declining trend from 4thsemester ,7th semester and to House Surgency. The difference was tested with Kruskal Wallis Test and found to be statistically significant.

each item of R-ATR scale are shown in Table 5, Among the studyparticipants,77.7% agreed that research was useful. About 83.9% agreed that research is connected to my field

Of study and 82% agree the skills acquired in Research will help in future. More than half agreed (54%.) that doing research is stressful and difficult

And for (48%) research courses make anxious. Around 50% enjoyed and found that doing research is interesting.

Table-5: R-ATR scale of study participants(n=355)

R-ATR Scale			Agree		Disagree		Neutral	
			No	%	No	%	No	%
Research Usefulness	1	Research is useful for my career	276	77.7	35	9.9	44	12.4
	2	Research is connected to my field of study	298	83.9	30	8.5	27	7.6
	3	The skills I have acquired in Research will be helpful to me in the future.	291	82	30	8.5	33	9.3
	4	Research should be in indispensable in my professional training.	214	61.1	66	18.9	70	20
Anxiety	5	Research courses make me anxious	117	48	116	32.8	68	19.2
	6	Research courses scare me	90	25.5	195	55.2	68	19.3
	7	Research courses are stressful	192	54.2	108	30.5	54	15.3
	8	Research courses make me nervous	127	36	153	43.3	73	20.7
	9	Research courses and difficult	189	54	95	27.1	66	18.9
Positive Research Predispositions	10	I enjoy my research course(s)	118	50.7	84	23.7	91	25.6
	11	I love research course	156	44.1	100	28.2	98	27.7
	12	I find Research courses interesting	180	50.8	100	28.2	74	20.9
	13	Research courses are pleasant	144	40.7	109	30.8	101	28.5

Proportion of study participants batch wise who Agree, Disagree or Neutral were found out. There was statistically significant difference between the 4th, 7thSemester students and House Surgeons in their attitude towards research in all three domains [Tables 6, 7, 8]. Research usefulness showed significant difference in all 4 items between the three batches of students with higher proportion of 4th semester students agreeing to usefulness of research. In the anxiety domain, 2 items showed significant difference. There was a statistically significant difference between the three batches in their Positive Research Predispositions.

Table-6: Batch wise proportion of Domain: Usefulness

Usefulness	Batch	Agree	Disagree	Neutral	Chi-square value	P Value
Research is useful for my career	4th	107 (38.8%)	8 (22.9%)	16 (36.4%)	20.912	<0.001
	7th	104 (37.7%)	6 (17.1%)	14 (31.8%)		
	HS	65 (23.6%)	21 (60%)	14 (31.8%)		
Research is connected to my field of study	4th	115 (38.6%)	5 (16.7%)	11 (40.7%)	29.516	<0.001
	7th	114 (38.3%)	5 (16.7%)	5 (18.5%)		
	HS	69 (23.2%)	20 (66.7%)	11 (40.7%)		
The skills I have acquired in Research will be helpful to me in the future.	4th	117 (40.2%)	2 (6.7%)	11 (33.3%)	34.648	<0.001
	7th	106 (36.4%)	6 (20%)	12 (36.4%)		
	HS	68 (23.4%)	22 (73.3%)	10 (30.3%)		
Research should be in indispensable in my professional training.	4th	88 (41.1%)	23 (34.8%)	18 (25.7%)	14.081	0.007
	7th	79 (36.9%)	16 (24.2%)	28 (40%)		
	HS	47 (22%)	27 (40.9%)	24 (34.3%)		

Table-7: Batch wise proportion of domain-anxiety.

Anxiety	Batch	Agree	Disagree	Neutral	Chi-square value	P Value
Research courses make me anxious	4th	73 (42.9%)	33 (28.4%)	25(36.8%)	14.121	0.007
	7th	61 (35.9%)	36 (31%)	26(38.2%)		
	HS	36 (21.2%)	47 (40.5%)	17 (25%)		
Research courses scare me	4th	37 (41.1%)	71 (36.4%)	23 (33.8%)	3.622	0.460
	7th	30 (33.3%)	63 (32.3%)	29 (42.6%)		
	HS	23 (25.6%)	61 (31.3%)	16 (23.5%)		

Research courses are stressful	4th	64 (33.3%)	42 (38.9%)	25 (46.3%)	10.391	0.034
	7th	80 (41.7%)	28 (25.9%)	16 (29.6%)		
	HS	48 (25%)	38 (35.2%)	13 (24.1%)		
Research courses make me nervous	4th	49 (38.6%)	53 (34.6%)	28 (38.4%)	5.668	0.225
	7th	47 (37%)	47 (30.7%)	29 (39.7%)		
	HS	31 (24.4%)	53 (34.6%)	16 (21.9%)		
Research courses are difficult	4th	70 (37%)	34 (35.8%)	27 (40.9%)	3.129	0.536
	7th	70 (37%)	29 (30.5%)	24 (36.4%)		
	HS	49 (25.9%)	32 (33.7%)	15 (22.7%)		

Table-8: Batch wise proportion of Domain - Positive Research Predispositions

Positive Research Predispositions	Batch	Agree	Disagree	Neutral	Chi-square value	P Value
I enjoy my research course(s)	4th	83 (46.1%)	15 (17.9%)	33 (36.3%)	26.154	<0.001
	7th	62 (34.4%)	31 (36.9%)	31 (34.1%)		
	HS	35 (19.4%)	38 (45.2%)	27 (29.7%)		
I love research course	4th	77 (49.4%)	19 (19%)	35 (35.7%)	30.121	<0.001
	7th	50 (32.1%)	37 (37%)	37 (37.8%)		
	HS	29 (18.6%)	44 (44%)	26 (26.5%)		
I find Research courses interesting	4th	85 (47.2%)	17 (17%)	29 (39.2%)	32.293	<0.001
	7th	59 (32.8%)	37 (37%)	27 (36.5%)		
	HS	36 (20%)	46 (46%)	18 (24.3%)		
Research courses are pleasant	4th	69 (47.9%)	20 (18.3%)	42 (41.6%)	30.454	<0.001
	7th	50 (34.7%)	43 (39.4%)	30 (29.7%)		
	HS	25 (17.4%)	46 (42.2%)	29 (28.7%)		

Discussion

A total of 355 students and house surgeons participated in the study; Out of which 100 were Interns, 131 from 4th semester and 124 from 7th semester. Majority of students (54.1%) were in the age group 22-24 years. Mean age of the study population is 22.2 with SD 1.7. There were 58.6% female and 41.4% male.

As the data was skewed, Median with IQR was calculated. Median score of total R-ATR score and domain wise score calculated batch wise. Total median score was found to be decreasing from 62 to 59 and then to 53 among the students from 4th semester, 7th semester and the interns respectively.

Domain wise median score for Usefulness, Anxiety and positive predisposition, were also found to be declining likewise. This declining trend in attitude towards research was reported by Amin TT, et al which showed that 3rd year students had a higher attitude scores compared to 4th and 5th years in King Faisal University, Kuwait University [5].

Whereas a longitudinal study by Vukaklija et al [6] showed a definite increase in the attitude scores as the students moved from the first year to the sixth

Year of the undergraduate course. The attitude score of the students was better with the advancement of their academic year except 3rd-year students who had low attitude score compared to other year students was reported by Pallamparthi S et al [7].

In this study less than 50% students showed positive attitude towards research. In a study by Kyaw Soe HH et al the response rate on the positive attitude towards research was 81.94%. About 83.3% of the students had moderate attitude and 11.3% had good attitude [8].

The study by Memarpour M et al, states that most of the students showed an attitude to research that fell below the 50% level similar to the present study [9]. Nel D et al showed very little difference in attitude to research was present between preclinical and clinical respondents with almost equal proportions feeling positive (61% v. 61%, respectively) Positive attitude (a score of > 25) toward medical research was found in 19.8% of students in a study by Chellaiyan VG et al [10] Siemens D R et al in his study showed significant differences in the attitudes towards research endeavours during medical school between students in their fourth year compared to second year [11].

In the present study there was statistically significant difference between the 4th, 7th Semester students and House Surgeons in their attitude towards research.

The proportion of participants with positive predisposition towards research in the study was slightly lower than reported by D Nel et al (50% in the present study versus 61% However the proportion of students who enjoy research was similar [12].

Osman T et al in his study found that 91.3 % perceived research important to medicine and 59.6% perceived that it should be a requirement for partial fulfilment of the MBBS degree [13].

Whereas in this study it ranges from 23 to 38%. 43% report that they have not been significantly involved in research activity during medical school and 24% had no interest in any participation. Present study 50.8% agreed to have interest in doing research. While a study by D Robert Siemens et al reports an increasing trend towards future use of research from 38% of 2nd year to 53% of, the present study showed a decrease in the usefulness domain [11]

A higher proportion of participants in the present study agreed to the usefulness of research in their career compared to that reported in literature, (77% Vs 44% by K M Al Ghamdi et al [14]. The attitude toward making research mandatory for all medical students was similar in both settings (61% Vs 67.4%).

Tarig Osman in his study revealed that 91.3% agreed that the research is important to the practice of medicine and 76% agreed that it should be connected to the medical curriculum [13]. As in the study by Turk et al. The majority of participants agreed or strongly agreed that the role of research is important (96.3%). Most of them thought that it was important to participate in research during medical school (71.2%) and that teaching research methodology should be part of the curriculum (79.8%) [15].

It was interesting to note that almost half of the study participants perceived research to be anxious and found it stressful and difficult. Another important finding was that a high proportion of students feel their current skills in research are inadequate for future use.

This informs that academic programmes of student research methodology should aim to reinforce the

Importance of research continuously from 4th semester to house surgency so that the declining interest over the academic years may be prevented. The study did not find out any association between gender and attitude towards research as reported in literature showing that attitude to research is similar among boys and girls whether positive or negative. These are important findings to inform modification in research methodology teaching programme. Teachers and guides need to continuously take feed back of the teaching process and modify it so that students are adequately equipped, supported and motivated to do research. Under the Medical University, medical students are given research methodology training during their 4th semester posting. They are trained to formulate a research protocol under the guidance of a faculty. They will be doing the study there after and will be presenting the research report during 7th semester. After 4th semester there will not be much thrust on research. Again after 7th semester the students are exposed to research while doing their Post graduation for doing their thesis. That may be the reason, the Attitude score showing a declining trend as the progress from 4th semester through 7th semester and to house surgency. The Strength of the study was using a validated tool covering most of the participants and as it is self-reported data, responses may be varied to some extent is the limitation of the study.

Conclusion

There is a decline in attitude towards research among 4th semester medical students to 7th semester and house surgeons. The students perceive the research process as stressful and anxious though half of them enjoy the process. Even when a high proportion perceives research to be useful, almost half of them feel that their research skills are inadequate for future use. The study did not find out any association between gender and attitude towards research.

What this study adds to the existing knowledge

The Indian Medical graduate to be a lifelong learner should be able to search and critically evaluate the medical literature and apply the information in care of patients. Graduate should be able to develop a research question and be familiar with basic clinical and translational research as it applies to the care of the patient.

Hence the students should be competent to do research not only during Under Graduate training but also during their Post graduate training and in their real practice. The present study shows that there is a declining trend in Attitude score among 4th semester, 7th semester and in interns. Hence they should be continuously exposed to research in their postings in different departments and during their internship.

Recommendations

01. Students should give opportunities for research in each phase of MBBS Course.
02. House Surgeons should also be engaged in research projects, project presentation and discussion during their posting in various departments.
03. Strong administrative will is essential for facilitating research.
04. Student conferences and research workshops to be strengthened

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