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Knowledge, Attitude and Practices towards Bio-Medical Research amongst the Postgraduate Students of Smt. N.H.L Municipal Medical College of Ahmedabad

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Abstract:

Introduction : Every doctor should strive to contribute to the generation of evidence by conducting research. A review of literature showed that the data regarding knowledge, attitude, practice towards medical research among postgraduate students pursuing postgraduate studies in India is lacking. **Objectives :** To assess research-related knowledge, attitude and practices of post-graduation students of Smt. N.H.L municipal Medical college of Ahmedabad, Gujarat. **Method :** A cross-sectional study was carried out during November-December 2015. A total number of 221 postgraduate students were interviewed for knowledge, attitude, and practices related to Bio-medical research by using a Questionnaire method. Findings were analyzed using appropriate software. **Results :** In present study, out of total 221 students, 53.4% had taken training of research methodology. The full form of ICMR was identified correctly by 87% students, 59% of knew the full form of MEDLARS. Only 45% were aware about seeking approval for conducting clinical research. The association between research methodology training and knowledge was statistically significant ($p<0.05$). Almost 95% postgraduate students agree for conducting training compulsory for research methodology. About 61% of the students believed that the lack of time due to vast curriculum of postgraduate subject for poor research activity. **Conclusion :** Postgraduate students have unsatisfactory knowledge about bio-medical research. They have positive attitude towards research, but they have failed to transform their Knowledge and attitude in actual practice due to various factors and to have a multi-faceted program to encourage postgraduate students to carry out research.

Keywords : KAP, Bio-Medical research, Postgraduate students

Introduction :

It is the duty of every doctor to care for his patients and provide the best available treatment. The duty of care also requires doctors to keep their medical knowledge and training up-to-date. Doctors should provide effective treatments based on the 'best available evidence'. It is widely accepted that evidence-based medicine has contributed significantly to the practice of medicine and advancement of medical science. Every doctor should strive to contribute to the generation of evidence by conducting research.[1] Training for research skills and experience of research early in career has been associated with continued professional academic work and may help inform residents career decisions.[2]It is seen that research programs in medical colleges get the lowest priority. There are a numbers of reasons, including lack of funding and manpower resources, responsible for the poor quality in research oriented Medical education.[3] As per the Medical Council of India (MCI) requirements, postgraduate students have to carry out a dissertation project as a part of their MD/MS curriculum. It is a common observation that a majority of postgraduate students conduct research projects during the second or third years of residency.[4]In order to encourage research orientation in postgraduate students, currently MCI has made it mandatory to not only attend one international/national conference, but also give an oral/poster presentation and send the Article for publication. [5]

A review of literature showed that, the data regarding knowledge, attitudes and practices toward biomedical research is lacking among postgraduate students pursuing postgraduate studies in India. [6] It is felt that the existing level of knowledge and awareness among the second and third year postgraduate students, who have already conducted / are conducting at least one research study for their

dissertation, should be evaluated. Therefore, we have decided to undertake a cross-sectional study to assess research-related knowledge, attitude, and practices of postgraduate students of a tertiary care hospital affiliated to a medical college in Ahmedabad.

Objectives :

1. To study the socio-demographic profile of postgraduate students
2. To assess research-related knowledge, attitude and practices of postgraduate students
3. To find out difficulties faced by postgraduate students in conducting medical research
4. To suggest measures to improve research related knowledge and attitude among PG students based on the study findings

Method :

Study design : Cross-sectional Study

Study Sample : 484 postgraduate students admitted to the MD/MS course. 153,166 and 165 students from first, second and third year of PG course were enrolled in the study. In the present study, only 2nd year 110 (66.26%) and 3rd year 111 (67.27%) students, total 221 (45.66%) PG students were including too consented to participate.

Sample siz : 221 (who had consented to participate)

Period of study : November - December, 2015

Study area : Smt. N.H.L Municipal Medical College of Ahmadabad (VS General Hospital)

Sampling technique : Non-probability convenience sampling technique

Inclusion criteria : All the specialties of faculty including clinical, para-clinical & preclinical graduate students who gave verbal consent to participate in the study

Exclusion criteria : Postgradute students not available on the day of visit

Semi-structured Questionnaire method was employed for data collection.

Approval from concerned authorities of hospital and departments was ensured. The data collected and entered in the excel 2007 worksheet and analyzed by using appropriate software.

Data collection tool :

A predesigned semi-structured questionnaire was prepared and was divided in three parts. The first part is the collection of demographic information of the postgraduate students including age, gender, academic year, and specialty. The questions in the second part of the questionnaire assess the knowledge about research methodology, their attitude and practice in research. The third part of the questionnaire was about assessing difficulties faced by post graduate student in conducting medical research. Study participants were enrolled in the study after explaining the purpose of the study and having informed consent. The process of data collection did not interfere with the work of hospital and confidentiality of the student was ensured.

Table 1: Socio-demographic profile of post graduate students (n=221)

Demographic profile	Number (n=221)	Percentage (%)
Gender		
Male	155	70.1
Female	66	29.9
Age (in year)		
25-26	69	31.2
27-26	113	51.1
>29	39	17.6
Marital status		
Married	98	44.3
Unmarried	123	55.7
Speciality		
Clinical	196	88.7
Para-clinical	22	10.0
Pre-clinical	3	1.4
Year of Post-Graduation		
Second year	103	46.6
Third year	118	53.4

Table 1 shows that socio-demographic profile of postgraduate students, 70.1% respondents were males and 29.9% females. About 51.1% of the students belong to the age group of 27-28 years followed by 31.2% in the age group of 25-26 years. Mean age of the study population was 27.21 with SD 1.323 years. Among total students, 55.7% were unmarried while 44.3% married. Majority (88.7%) postgraduate students belonged to clinical departments, 10% from para-clinical departments.

Table 2: Assessment of research-related knowledge of postgraduate students (n=221)

Questions	**Yes (%)**	**No (%)**
Have you taken in any research methodology training?	118 (53.4)	103 (46.6)
	Correct (%)	**InCorrect (%)**
What is the full form of ICMR?	193 (87.3)	28 (12.7)
What is the full form of MEDLARS?	131 (59.3)	90 (40.7)
From whom to seek approval for conducting clinical research using new drugs in India?	99 (44.8)	122 (55.2)
What is the full form of CTRI?	101 (45.7)	120 (54.3)
What is cohort study?	80 (36.2)	141 (63.8)

Table 3 : Association between Training of research methodology and knowledge (n=221)

Knowledge		**Taken for training of research methodology**		**Chi-square Test**
		Yes	**No**	
Full form of ICMR	Correct	133	80	$\chi 2 = 16.271$
	Incorrect	5	23	P<0.05
Full form of MEDLARS	Correct	90	41	$\chi 2 = 30.294$
	Incorrect	28	62	P<0.05
Seek approval for conducting clinical research using new drugs in India	Correct	73	26	$\chi 2 = 29.826$
	Incorrect	45	77	P<0.05
Full form of CTRI	Correct	69	32	$\chi 2 = 16.646$
	Incorrect	49	71	P<0.05
What is cohort study?	Correct	54	26	$\chi 2 = 10.027$
	Incorrect	64	77	P<0.05

Table 2 Shows that out of 221 postgraduate students (118)53.4% students had taken research methodology training. Whereas 87.3% students aware about the ICMR, 59.3% students know the full form of MEDLARS and 45.7% students know about the full form of CTRI respectively. 44.8% of the students concerned about the approval for conducting clinical research. 36.2% PG students were known about the concept of cohort study.

Research methodology related knowledge

We had analyzed the questions concerning about research methodology. We had included the various questions in the study which were about the concept of research methodology. Thus depending upon this analysis we had classified their knowledge into categories of satisfactory and unsatisfactory.

Table 3 shows that statistically proved, a significant difference was found in the students who had taken training of research methodology. This difference is also observed in knowledge, indicating a highly probable association between the two variables. It is also supported by chi-square at the p<0.05

Table 4 : Association between Research methodology training during different phase and knowledge (n=221)

Knowledge		Research methodology training during different phase			Chi-square
		Undergraduate	Internship	Postgraduate	Test
Full form of ICMR	Correct	79	5	29	χ 2 = 10.900
	Incorrect	2	2	1	P<0.05
Seek approval for conducting clinical research	Correct	56	4	13	χ2 = 6.248
	Incorrect	25	3	17	P<0.05
Full form of MEDLARS	Correct	64	6	20	χ 2= 2.210
	Incorrect	17	1	10	p>0.05
Full form of CTRI	Correct	48	5	16	χ 2 = 0.831
	Incorrect	33	2	14	p>0.05
What is cohort study	Correct	36	1	17	χ 2 = 4.288
	Incorrect	45	6	13	p>0.05

Table 5 : Assessment of research-related attitude of postgraduate students (n=221)

Questions	Agree (%)	Strongly agree (%)	Disagree (%)	Strongly disagree (%)
Research methodology syllabus in undergraduate curriculum	114 (51.6)	94 (42.5)	12 (5.4)	1 (0.5)
Should training for research methodology, be made compulsory for postgraduate student?	104 (47.1)	106 (48.0)	10 (4.5)	1 (0.5)
Does patient outcome improve with continued medical research?	102 (46.2)	106 (48.0)	12 (5.4)	1 (0.5)
Should research time, be allotted separately while planning postgraduate curriculum?	87 (39.4)	125 (56.6)	7 (3.2)	2 (0.9)

Table 4 describes association amongst knowledge of those who have taken training during different pried like undergraduate, internship and postgraduate surprise. We found that those who have taken training during undergraduate had batter knowledge and it was key feature in more correct answer-scoring better results (for example aware seek approval for conducting clinical research). The chi-square value was 6.248 at p< 0.05. Undergraduate had better knowledge as compare postgraduate.

Table 5 shows that 51.6% of the post-graduation students agreed and 42.5% strongly agreed that research methodology syllabus should be in undergraduate curriculum. 47.1% agreed and 48% strongly agreed that research methodology training should be compulsory for postgraduate students.46.2 % agreed and 48% strongly agreed that patient outcome improves with continued medical research. 39.4% agreed and 56.6% strongly agreed that a separate time should be allotted in the curriculum for research activities.

Table 6 : Association between Training of research methodology and attitude (n=221)

Attitude				Chi-square
		Yes	No	Test
Research methodology syllabus in undergraduate curriculum	Agree	115	93	$\chi 2 = 5.102$ P > 0.05
	Disagree	3	10	
Training for research methodology be made compulsory for postgraduate students	Agree	116	94	$\chi 2 = 5.760$ P > 0.05
	Disagree	2	99	
Dose patient outcome improve with continued medical research	Agree	115	31	$\chi 2 = 5.102$ P > 0.05
	Disagree	3	0	
Research time be allotted separately while planning postgraduate curriculum	Agree	116	96	$\chi 2 = 3.663$ P > 0.05
	Disagree	2	7	

Table 7 : Assessment of research-related practices of postgraduate students (n=221)

Questions	Yes (%)	No (%)
Do you have experience of writing research paper?	174 (78.7)	47 (21.3)
Do you regularly read journals	170 (76.9)	51 (23.1)
Do you have publication in journals during your PG?	83 (37.6)	138 (62.4)
Have you presented research paper in a conference during your PG?	173 (78.3)	48 (21.7)
Have you presented poster in a conference during your PG?	211 (95.5)	10 (4.5)

(Table 6) Surprisingly, there was no statistically significant difference between the two groups of postgraduate students who had attended research methodology training and not attended, and their attitude toward the bio-medical research which was also reflected by the chi-square value at the $p > 0.05$.

Table 7 shows 78.7% students had experience of writing research paper. 76.9% students read journals regularly. Only 37.6% students had done publications in journals whereas 78.3 % students had presented research paper while 95.5% had presented poster in conference during their post-graduation.

Figure 1 shows the out of total 221 postgraduate students 118 (53.4%) students had taken research methodology training During under graduation 69%, post-graduation 25% and 6% during internship.

Figure 1: Research methodology training during different phase

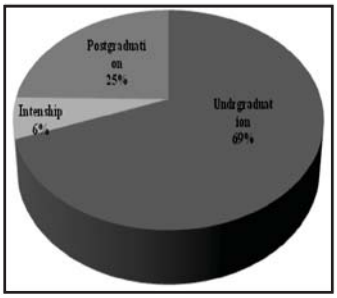

Figure 2 : Paper and poster presentation in conference at different levels.

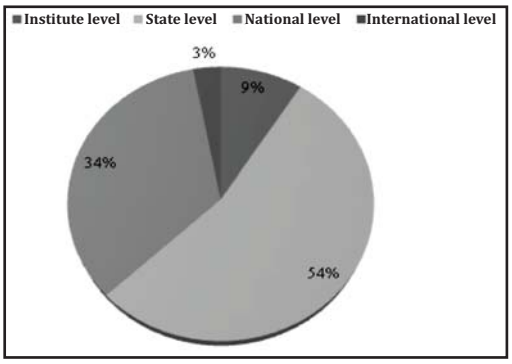

Figure 2 shows that amount of papers and posters presented at different level conferences in their PG curriculum. About 54% of Postgraduate students had presented their paper or poster at state level conferences. While about 34% at national levels. Only 9% of Postgraduate students had presented their presentation at any institutes. International levels 3% are the least students who had presented at international conference through their post gradation.

Figure 3 : Difficulties faced by post graduate student in conducting medical research. (n=221) (Personal reasons)

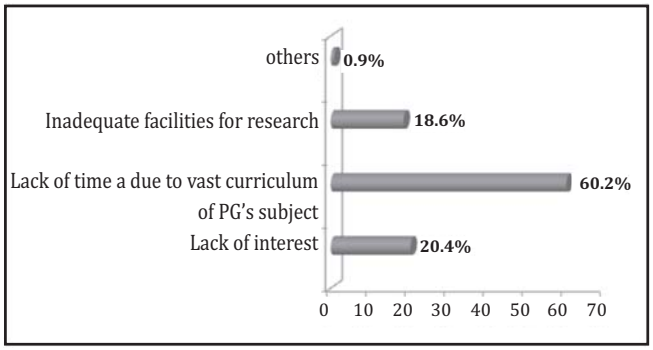

Figure 3 shows the major difficulties faced by postgraduate students were conducting medical research. Lack of time due to vast curriculum of PG subject is the main reason which accounted about 60.2% followed lack of interest 20.4% and inadequate facilities 18.6% for research.

Figure 4 : Difficulties faced by postgraduate student in conducting medical research. (n=221) (Institutional reasons)

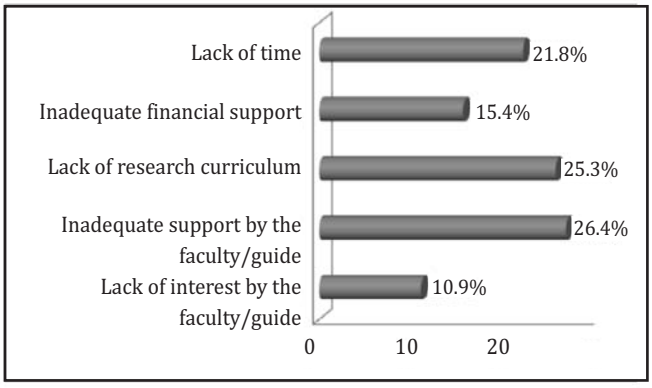

Figure 4 The Difficulties faced into conducting medical research among postgraduate students. About 26.4% PG students believed that inadequate support was got from their respective faculty or guide. 25.3% of the students thought regarding research curriculum was inadequate for them. Because of heavy workload, 21.8% students believed that they did not have time for research. 15.4% students believed in inadequate funding on research. 10.9% of the Postgraduate students viewed about the lack of interest by their faculty or guide for research.

Discussion :

Medical research carried out by undergraduate and postgraduate students in India is disappointing compared to developed countries. To date research has not become a mandatory part of the curriculum of undergraduate of medical education in India. In Germany, where research is an integral part of undergraduate medical curriculum; medical students were involved in 28% of the publications in a particular institution.[7]

We carried out this study to assess Knowledge, Attitude and Practices towards Bio-Medical Research amongst the Postgraduate Students. We have taken total 221 of postgraduate students in our research related study and among them 88.7% students were from clinical department, 10% students were from Para-clinical department and 1.4% student's preclinical department in the present study.

Out of total postgraduate students, 53.4% students had taken training of research methodology. Our study revealed that knowledge about the need and prerequisites of research was fairly good among postgraduate students. Most of the postgraduate students showed a positive attitude toward medical research and intended to do research in future career. But there was disparity found with regard to their attitude and actual

practice. Results are comparable to study done in Mumbai. 64% of the postgraduate students had attended research training and workshops but 'Lack of time' was cited as an obstacle for research by 74%. This discrepancy between attitude and practice is a cause of concern and merits further investigation[8] the major reasons cited for poor research activity in our study are lack of time due to vast curriculum of post-graduation subjects 60.2% and inadequate support by the faculty or guide 26.4% for medical research. While in a study at Pakistan lack of resources (31%) and poor research training at undergraduate and postgraduate level (17%) were the top reasons for poor research activity[9] Similar results were obtained in a study done in Madison, USA; in that study, out of 143 postgraduate students, 85% felt that research experience was desirable, 48% were interested in pursuing research during residency, and only 8% were active in research[10] However, two studies that were carried out in Canada and Pakistan reflected a contrasting attitude of postgraduate students that a majority of time in residency should be spent learning the clinical aspects of their specialty and they were unwilling to sacrifice personal time for research. [11, 12] A study done by Sumi also revealed that most physicians (93.2%) wanted to attend lectures or seminars on one or more topics related to clinical research. [13] Among respondents, 68% of physicians reported current participation in clinical research and 74% reported past participation in clinical research.[14] In the present study, 78.7% students had experienced of writing research paper and 76.9% students were reading journals regularly. Results were compared to the study done in Rajkot and Loni Maharashtra. Study conducted at Rajkot showed that the writing protocol was present in about in 32% and publications were in journal 15%.[15] A study at Loni suggested that the data of writing protocol was present in 71% and publication in journal was 36%.[16] These studies showed various key findings about the knowledge, attitude and practice of bio-research among postgraduate students that would be of interest to medical educators and policy makers. The Board of Governors of the MCI came out with 'Vision 2015' (GME Regulations 2012), that contains many notable recommendations for the improvement of the current system including research methodology training as an elective. [17,18] If these are implemented as mandatory in curriculum, the impact of improvement in Indian medical research will be felt globally.

Conclusion :

In the present study, it was found that postgraduate students had unsatisfactory knowledge of bio-medical research. They had positive attitude towards research, but they have failed to transform their knowledge and attitude in actual practices due to lack of time in their vast curriculum of postgraduate subjects and inadequate support by the faculty or guide and inadequate infrastructure. There is need to encourage postgraduate students to carry out research through a multi-faceted program including provision of technical assistance and essential infrastructure during their postgraduate training program as well as training of their guides but we looking at our finding we strongly suggest that research methodology training must be mandatory in undergraduate.

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Declarations :

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Conflict of interest : Nil

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