

## Research Article



## Knowledge, Attitude and Practices Regarding Research Methodology among Postgraduate Dental Students

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### ABSTRACT

The aim of the study was to assess the knowledge, attitude and practices of dental postgraduate students regarding research methodology. A self-administered structured questionnaire consisting of 16 questions on knowledge, attitude and practice regarding research methodology was distributed among 100 post graduate dental students randomly belonging to 1st year, 2nd year and 3rd year of study in saveetha dental college, saveetha university, chennai. The data extracted were tabulated, statistically analyzed and results obtained. 76% of students answered that research hypothesis can be defined as a solution to a question which has a capacity of verification or empirical demonstration. 62% answered that Medline is a medical database. 98% of post graduates had higher confidence levels for doing research. 99% of the students have participated in research projects and were interested in doing research in the future. In our study the Post graduate dental students have good knowledge about research methodology and excellent practice aspects on research. They also showed positive attitudes in carrying out research.

**Keywords:** knowledge, attitude, practices, dental students, research methodology, career.

### INTRODUCTION

Scientific research is performing a methodical study in order to prove a hypothesis or answer a specific question. Finding a definitive answer is the central goal of any experimental process. Research must be systematic and scientific, follow a series of steps and a rigid standard protocol which is generally termed as Research Methodology.

#### Types of Research<sup>1</sup>

**Historical research** generates descriptions, and sometimes attempted explanations of conditions, situations, and events that have occurred in the past.

**Descriptive research** provides information about conditions, situations, and events that occur in the present. Review papers submitted on specific areas are the good example of this kind of research which attempts to review and describe the current trends of the specific topic.

**Co relational research** involves the search for relationships between variables through the use of various measures of statistical association. This is one of the crucial research work that will establish the relationship between influencing factors such as influence of a singular or combinational drugs on treatment of a particular disease.

**Causal research** aims to suggest causal linkages between variables by observing existing phenomena and then searching back through available data in order to try to identify plausible causal relationships. For example, a

study of factors related to patients hygiene behaviour in the formation of dental caries.

**Case study research** refers to an in-depth study of a particular problem.

### RESEARCH METHODOLOGY

Technology is dramatically changing educational research processes. With the help of wider spectrum of information flow and advanced modeling and data analysis methods, it is becoming feasible to encourage more students participate in the research activities during their academics.

Methodology is the systematic, theoretical analysis of the methods applied to a field of study. Typically, it encompasses concepts such as paradigm, theoretical model, phases and quantitative or qualitative techniques. A methodology does not set out to provide solutions - it is, therefore, not the same as a method.

A research methodology is a systematic plan for conducting research.<sup>2</sup> There are a variety of both qualitative and quantitative research methods, including experiments, survey research, participant observation, and secondary data. Quantitative methods aim to classify features, count them, and create statistical models to test hypotheses and explain observations. Qualitative methods aim for a complete, detailed description of observations, including the context of events and circumstances.

Following are the classical phases of Research methodology.<sup>2</sup>



1. Research question / Problem
2. Background / Observation
3. Formulate hypothesis Classical phases
4. Design experiment
5. Test hypothesis / Collect data
6. Interpret / Analyze results
7. Publish findings

### Measuring Research Methodology Awareness

Doing research is not just an imperative, but a need as part of a graduation process. If education is not based upon research and evidence, then it runs the risk of being based upon one or more of the following:<sup>3</sup>

- Theory
- Ideology
- Convenience
- Prejudice

It is also important for the graduate students to have good awareness and understanding of the Research Methodologies for conducting systematic, scientific research. Besides the awareness and understanding of the Research Methodology, it is also critically important that the students of the postgraduate courses have the right attitude to get involved in research activities. In this study we have developed a survey to collect data for measuring and analyzing the results.

It is highly critical for academic institutions to provide differentiated and effective education to its students

which help as the catalyst for development. In this context Research studies conducted in colleges by Post Graduate students plays a vital part in getting the knowledge of recent developments across the globe. It is also equally important that the research studies conducted by students should be of good quality and strictly follows the laid out methodologies. Many studies were done to assess the knowledge and attitude of medical students regarding health research methodology both in our country and abroad.<sup>4,5</sup>The rationale of this study was to assess the awareness of Research Methodology among the post graduate students of our dental college.

### METHODS

A cross sectional study was conducted during the academic year in December 2016 among the postgraduate dental students of Saveetha Dental College, Saveetha University, and Chennai. 100 students were randomly enrolled in the study including 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year of the study. All students in the study voluntarily completed a questionnaire consisting of 16 closed ended questions. The questions in the questionnaire were designed to assess their knowledge, attitude and practices regarding research methodology. Data collected, Statistical analysis done and results obtained.

### Knowledge, attitude and practices regarding research methodology among postgraduate dental students

### Questionnaire

[Kindly choose only one answer for the following questions. Answer all the questions. ]

Year :

Age /Sex:

### Knowledge

S. No	Question	Options
1	How do you define a research hypothesis?	A) An answer to a question
		B) A solution to a question which has a capacity of verification or empirical demonstration
		C) A proposed idea or thought
		D) Logical deduction of the premises that may or may not be verified empirically
2	What do you think a MEDLINE is?	A) The best known "on-line" medical journal
		B) Medical database
		C) Abbreviation is an acronym that lists the parts of the research article
		D) International association of medical informations
3	A scale from 1 to 5 is called?	A) Ratio scale
		B) Ordinal
		C) Interval
		D) It is not a scale
4	The part of a research paper is?	A) Description of the timeline
		B) Letter to the editor enclosed with the paper



		C) Author's curriculum
		D) Acknowledgement to persons who assisted you during the research
5	In writing an introduction section, rules to be followed include all EXCEPT	A) Do not explain words from the title of the paper
		B) Make it longer rather than shorter
		C) Clearly state why the research has been started
		D) Do not explain textbook facts

**Attitude:**

S. No	Question	Answer Options
6	Do you feel confident in interpreting and writing a research paper?	A) Yes
		B) No
7	Do you feel that dental students can plan and conduct research project without supervision?	A) Yes
		B) No
8	Research time should be allotted separately while planning?	A) Yes
		B) No
9	Do you feel that the present curriculum gives you adequate time to carry out research and analyse the data?	A) Yes
		B) No
10	Do you feel that research can be a good career option?	A) Yes
		B) No

**Practice:**

S. No	Question	Answer Options
11	Are you reading journals regularly?	A) Yes
		B) No
12	Have you participated in a research project apart from mandatory academic projects?	A) Yes
		B) No
13	Are you confident in presenting a research paper or poster in a conference?	A) Yes
		B) No
14	Are you interested in doing research in future?	A) Yes
		B) No
15	How many research papers have you published?	A) None
		B) 1
		C) 2
		D) More than 2
16	Factors of hurdles in conducting Research	A) Personal Interest B) Lack of Interest C) Patient Cooperation D) Others

**RESULTS****Knowledge: [Fig 1.]**1) **Definition of research**

- 7% of students answered it as "an answer to a question".

- 76% answered that research is a solution for question which has a capacity for verification.
- 5% answered that it is a proposed idea.



- 2% stated that it is a logical deduction of the premises that may or may not be verified empirically.

Inference: 100% Awareness

2) **MEDLINE**

- 12% answered it as an on-line journal,
- 62% answered it as a Medical Database
- 8% stated it as a acronym for article
- 7% answered it as an International association of medical information.
- 11% did not answer the question

Inference: 89 % Awareness

3) **Scale from 1-5**

- 5% answered it as a Ratio scale
- 90% as ordinal scale
- 5% as interval scale

Inference: 95% Awareness

- Majority of students answered correctly that **part of the research paper** is acknowledgement to persons who assisted during the research.
- Most of them were aware that **Introduction section** must be made shorter than longer.

According to the answers it is clear that post graduate students have good knowledge about research methodology.

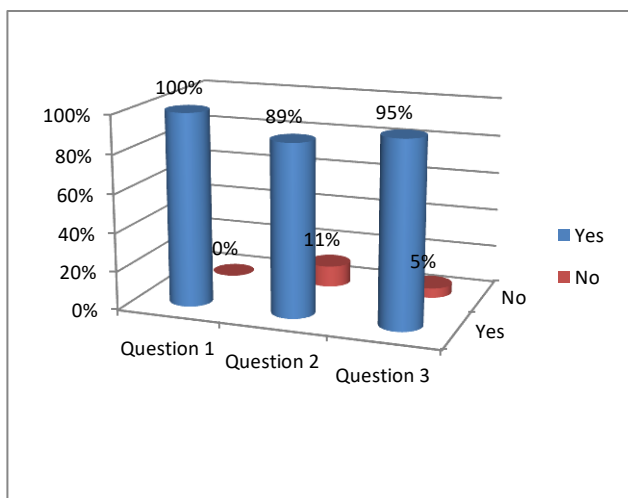


Figure 1: Survey on Research knowledge

**Attitude: [Fig 2.]**

6) **Confidence level on research**

98% of post graduates have higher confidence level on doing research.

7) **Research without supervision**

87% of post graduates were ready to do research without any supervision.

8) **Research time should be allotted separately**

99% answered they need exclusive time according to the research study done.

9) **Present curriculum gives adequate time?**

70% of students were not satisfied with the time allotted currently for the research.

10) **Research as a good career option**

60% agreed with research as a good career option and 40% of students answered that it can't be made as a good career option.

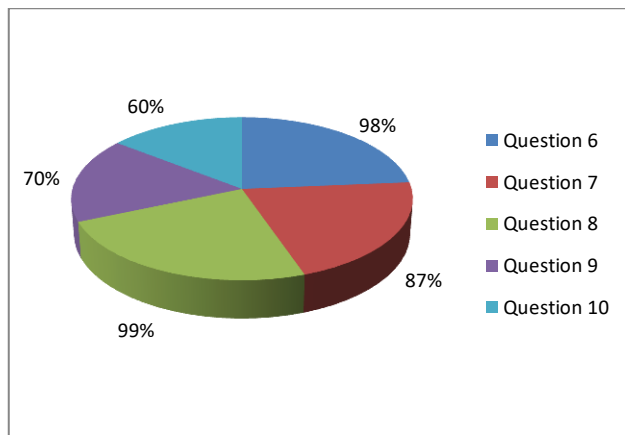


Figure 2: Survey on Attitude towards Research

**Practice: [Fig 3.]**

11) **Reading journals regularly:** 82% read journals regularly.

12) **Participation in research projects:** 99% of the students have participated in research projects

13) **Confidence in presenting paper:** 98% are confident in presenting paper or poster.

14) **Interest in doing research:** 99% are interested in doing research in future.

15) **Published papers:** 80% published 1-2 papers.

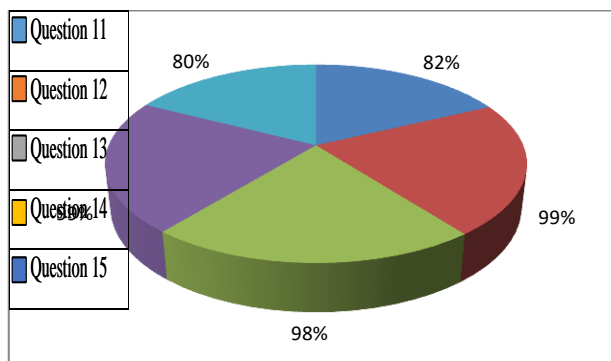
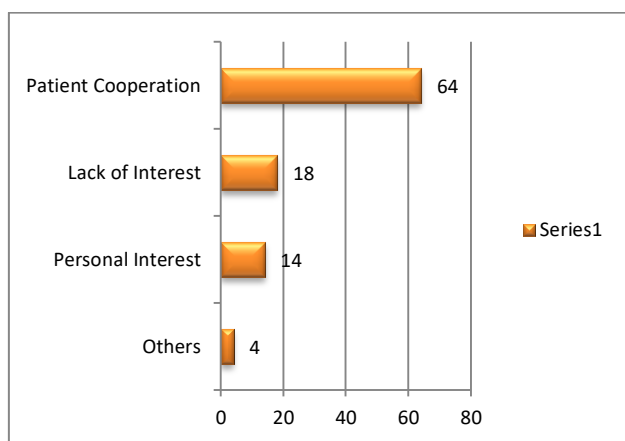


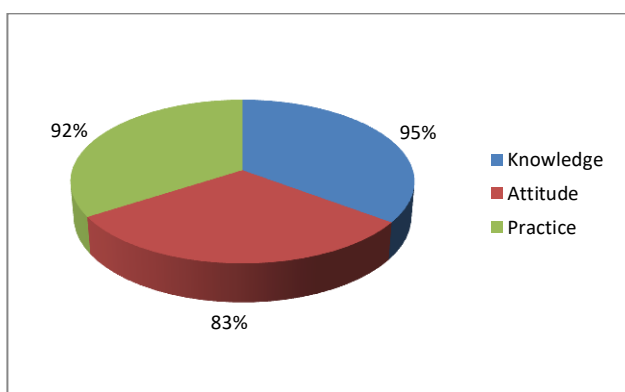
Figure 3: Survey on Research Practices

The response on the factors of different barriers to Research indicates that major factor of barrier is the cooperation of subjects.[Fig 4.]



**Figure 4:** Barriers in conducting Research

Overall knowledge, attitude and practice scores for the postgraduate students are expressed in the Fig 5.



**Figure 5:** Overall study statistics

## DISCUSSION

In our study, postgraduate students have good knowledge about research methodology and showed very positive attitudes in carrying out research both during their curriculum and in the future after obtaining graduation. In contrary, in a study by Memarpour et al<sup>6</sup>, Students showed favourable knowledge of research, but their attitude to the field was inadequate. Lack of student conferences and research workshops on how to write and organize research papers is among the reasons for such negative attitudes. They also stated that more attention must be placed on these parameters in the curriculum to improve student interest in health research. Whereas Khan et al<sup>7</sup> in their study showed that medical students demonstrated moderate level of knowledge and attitude towards health research.

In our study students exhibited excellent practice aspects of research. Whereas in a study by Sharma et al<sup>8</sup>, the postgraduate students revealed fair knowledge and a positive attitude toward research but they failed to transform it into actual practice. According to their study the most common obstacle stated for research was the lack of adequate financial and technical facilities for research.

In our study, patient non-cooperation was stated as the main barrier for conducting research. Whereas according to the study by AlGhamdi et al<sup>9</sup>, major obstacles that prevented the students from conducting research included lack of professional supervisors and lack of training courses. Although the majority of students believed that research is important in the medical field, only around half of the students, according to their study participated in research during medical school. Whereas in our study almost every student had participated in doing a research project.

Negative attitudes of students toward research have been found to serve as an obstacle to learning about research methodology which is associated with poor performance in research activities. In our study, student interest factor is not found to be a significant barrier in conducting research as they were very much interested in conducting research. This could be because of factors like imparting of research knowledge strongly for our students by the teaching faculties and research is promoted as mainstream part of the dental curriculum in our institution. Students were also given sufficient technical and financial support, thereby enhancing research activities among students.

In our study lack of time was stated as a main barrier for conducting research and students felt that adequate and separate time must be allotted for the same in the dental curriculum. Similarly in the study by Memarpour et al<sup>6</sup>, main barriers highlighted by students were lack of funding support and lack of time for research. The impact of barrier factors on research demonstrates that there is a need for greater availability of information in order to solve the problems and change strategies for research.

The findings of the study by El Tantawi<sup>10</sup> suggest that dental educators should direct their attention to students who have difficulties at the beginning of the course and should match the learning preferences of as many students as possible by presenting information in different ways rather than focusing on a single method of delivering the course, thereby promoting research activities and interests among students. There is also a strong need for establishing a standardized protocol for planning a study.<sup>11</sup>

Hence, intensive training in this regard in dental curriculum is associated with significant improvement in knowledge and attitudes of students towards health research.

## CONCLUSION

In our study the Post graduate dental students have good knowledge about research methodology and excellent practice aspects on research. They also showed positive attitudes in carrying out research.

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