

## STUDY THE IMPACT OF THE RESEARCH ORIENTATION PROGRAM ON UNDERSTANDING THE BASICS OF RESEARCH AMONG UNDERGRADUATE MEDICAL STUDENTS

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### ABSTRACT

**Objective:** This study was conducted to evaluate the impact of research orientation program on understanding the basics of research among undergraduate medical students. Basic knowledge of research is required to prepare a research protocol.

**Methods:** A research orientation program was conducted for enhancing the basic knowledge/skills of research for preparing a research protocol for short-term research projects. This basic knowledge of research among the undergraduate students was determined by using a set of questionnaire. The participants were given a set of questionnaire before and after attending the research orientation program.

**Results:** It was observed that the participated candidates improved their skills between the pretest and posttest which is due to well planned workshop/research orientation program.

**Conclusion:** This study indicates these kind of research orientation program could help undergraduate students for enhancing the research skills required for preparing research protocol of short term research projects.

**Keywords:** Undergraduate research, Research skill, Research orientation program, Research protocol.

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### INTRODUCTION

Research means a search for knowledge, which is carried out with a scientific and systematic search for obtaining a solution on a specific topic. According to some experts, research is nothing but a "systematized effort to gain new knowledge." Research is thus considered as an original contribution to the existing stock of knowledge making for its advancement. In short, research is nothing but finding an exact solution to an existing problem. The role of research in several fields has greatly increased in modern days. Research inculcates scientific and inductive thinking and it promotes the development of logical habits of thinking and organization [1,2].

The present study was conducted using a "before and after without control design," in which a single test group of people is selected and a dependent variable is measured before conducting the research orientation program. The research orientation program is then introduced and the dependent variable is measured again after the completion workshop/research orientation program. The effect of the research orientation program would be equal to the level of the phenomenon after the research orientation program minus the level of the phenomenon before the research orientation program [3].

### METHODS

The study was conducted using a one-group pre- and post-test design. The study was conducted by following the method of selecting a group of participants, and data were collected in a systematic manner and results were analyzed statistically [1].

#### Participants and data collection for the present study

The present study was conducted on the II<sup>nd</sup> year undergraduate medical students of Navodaya Medical College, Raichur. A research orientation program/workshop was conducted to enhance the research skills among the medical students. The research orientation program

was organized for the entire batch of II<sup>nd</sup> year undergraduate medical students but for the present study, we selected only 100 students among them. A set of questionnaires were given before and after the completion of the research orientation program and data were collected on the same day [4,5].

#### Questionnaire

A set of questions (Table 1) were selected which is appropriate to identify the research skills needed for preparing a research protocol. These questionnaires were prepared using previous research studies conducted in various fields and later, it was analyzed by experts in the fields of research, their suggestions were incorporated in the present study which helped to assess the skills more easily readable and understandable manner. Students were asked to grade their skills to analyze their basic knowledge of medical research using questionnaires, and a group of 100 undergraduate medical students were subjected to the study before and after the research orientation program to assess their knowledge in the field of research [1,6].

#### Constructing the training program and test

To examine their ability in 15 skills identified by means of a questionnaire, the participant student has undergone a test of these skills, which is given grading as poor, satisfactory, good, very good, or excellent. This test was taken before and after they underwent a training program designed to enhance their basic skills or knowledge in the field of research for preparing a research protocol [1,7].

A research orientation program was conducted to enhance their basic knowledge in the field of medical research by following the method.

1. The knowledge of research skills for preparing a research protocol was determined using the set of questionnaires
2. The selection of topics and activities of the training program is based on a review of the literature on preparing and writing research protocols

**Table 1: Questionnaire for the assessment of research skills among undergraduate medical students**

Research skills	Grading of research skills				
	Poor	Satisfactory	Good	Very good	Excellent
1. Identifying the field of research.	0	1	2	3	4
2. Utilization of various sources for review of literature of particular research topic.	0	1	2	3	4
3. Summarization of the literature and analyze the contents of literature.	0	1	2	3	4
4. Finalizing a research topic.	0	1	2	3	4
5. Defining the research problem.	0	1	2	3	4
6. Determining objectives of research.	0	1	2	3	4
7. Formulating research hypothesis.	0	1	2	3	4
8. Defining the significance of the research topic.	0	1	2	3	4
9. Scaling the limitations of the study.	0	1	2	3	4
10. Basic principles of research design.	0	1	2	3	4
11. Formulating sampling technique.	0	1	2	3	4
12. Defining measurement and scaling techniques.	0	1	2	3	4
13. Methods of data collection.	0	1	2	3	4
14. Processing and statistical analysis of data using software.	0	1	2	3	4
15. Presenting the discussion and listing of references in a suitable academic style.	0	1	2	3	4

**Table 2: Results of paired-sample t-test for pre- and post-test scores**

Paired t-test	Number	Mean	Std. deviation	T	df	p-value
Pre-test	100	37.133	2.515	24.694	29	0.01
Post-test	100	15.40	3.035			

- Brief information of the training program was given to the participants at the beginning of the research orientation program
- Undergraduate medical students were subjected to a pre-test to assess their pre-training knowledge level in research, and skills are listed in Table 1
- The undergraduate medical students attended a research orientation program
- They underwent a post-test to determine the impact of the research orientation program in enhancing their research skills for preparing research protocol.

## RESULTS AND DISCUSSION

### The research skills required for preparing a protocol for scientific study

The questions given in the questionnaire are directed to find research skills required to prepare a protocol for scientific studies like the Indian Council of Medical Research Short-Term Studentship program, projects funded by universities, and for preparation of dissertation/thesis as a part of the curriculum [8]. As per a review of the literature, only a few research studies are available to determine the research skills and identify the research problems and challenges faced by undergraduate students. To detect all these scientific research-related issues, a questionnaire is prepared (Table 1), as per the review of literature 15 research skills is identified which are required for preparing and protocol for scientific study or research [1,9].

### Impact of research orientation program in enhancing the research skills required for preparing a protocol for scientific study

The impact of the research orientation program in increasing the level of participant's skills in preparing a research protocol was determined using paired-sample t-tests for pre- and post-test scores. The results are presented in Table 2.

The above-mentioned results show that participants in the training program had improved scores for research skills in preparing the research protocol;  $t(29)=24.694$ ,  $p=0.01$ . This is because mean pre- and post-test scores were 37.133 (SD: 2.515) and 15.40 (SD: 3.03), respectively. As we discussed earlier, participants are found to have insufficient knowledge and practical skills required to prepare a

research protocol. After conducting the research orientation program, the participants were found to have improved research skills [10]. The research orientation program was designed in such a way that it uplifts the knowledge and skills required to prepare a research protocol for scientific study [3,4]. The result of this study is consistent with previous studies, which indicates that attending a research orientation program/workshop increases the knowledge required to prepare a research protocol. Finally, this study also indicates that seminars, continuing medical education's (CME), conferences, and workshops contribute to uplifting the knowledge of the students of health-care sectors [11].

## CONCLUSION

The present study determines the effect of the research orientation program for enhancing the undergraduate student's skills for preparing a protocol required for a scientific study. These findings indicate the necessity of basic knowledge for preparing a research protocol. India has the highest young population in the world; they need a proper direction in the field of research. First, the undergraduate students should have a clear view for preparing a research protocol and their guides should supervise the research work from the beginning of it because a good beginning is half done. Second, undergraduate students should acquire a specific basic knowledge in each step of the upcoming research study, this can be done with the help of a review of literature or by attending more workshops, CMEs, conferences, and research orientation programs, and present can be used effectively to enhance the research skills. The universities should involve these kinds of activities in the curriculum which may help the students to gain knowledge in the field of research. Each research has its own impact; the present study is concerned about examining the impact of the research orientation program for enhancing the basic skills in preparing the research protocol in the field of health science. This study will open the avenue for further studies and newer ideas to inculcate clear knowledge of making a research protocol.

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