

AN EDUCATIONAL INTERVENTION STUDY AMONG DOCTORS ATTENDING A RESEARCH METHODOLOGY WORKSHOP IN A PRIVATE MEDICAL COLLEGE, SALEM, TAMIL NADU.

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ABSTRACT

BACKGROUND: Knowledge regarding research methodology should be an integral part of continuing medical education for medical faculties in any medical colleges. In order to help researchers communicate their results and help accumulate knowledge through conference papers, reports, on-line journals and print journals, medical colleges conduct research methodology workshops for their faculty every year.

Objectives:

1. To assess the existing knowledge in the basics of research methodology among doctors before educational intervention by a pre-test.
2. To measure the change in knowledge after educational intervention by a post-test.

Materials & Methods:

The study was conducted in VMKV Medical College, Salem, among doctors who participated in research methodology workshop during July 2012. A Pre-structured proforma was used to assess the existing knowledge on basics of study designs in research methodology at the beginning of the session.

Education intervention was done with the help of Power point presentations, illustrations with examples and printed materials. At the end of the session, after the education intervention, post- test was conducted to know the change in the knowledge.

Results : There was overall significant increase in knowledge ($P < 0.001$) in the basics of research methodology among doctors after educational intervention.

Conclusion : A systematic study of research methodology is an urgent necessity. Before undertaking research

projects, researchers should be well equipped with all the methodological aspects. After education intervention, there was a significant change in the knowledge.

Keywords : Educational Intervention, Doctors, Research Methodology Workshop, Medical College.

INTRODUCTION

Good medical manuscript writing demands more than just high-quality research. It requires accurate and concise communication of findings and conclusions, appealing presentation, and adherence to extensive journal guidelines.⁽¹⁾ In order to help researchers communicate their results and help accumulate knowledge through conference papers, reports, on-line journals and print journals, VMKV Medical College & Hospital, Salem, organises research methodology workshop every year.

IndiaCLEN, one of the seven regional networks of INCLIN (International Clinical Epidemiology Network) is registered as a non-profit health research network. The core unit of the IndiaCLEN is the Clinical Epidemiological Units (CEU) established in selected medical colleges to support the dissemination and application of clinical epidemiological principles in the education/research activities.⁽²⁾ As per the guidelines of CEU, the medical colleges are involved in teaching research methodology to undergraduate and post graduate students and faculty in carrying out various aspects of research.

OBJECTIVES

1. To assess the existing knowledge in the basics of research methodology among doctors before educational intervention by a pre-test.
2. To measure the change in knowledge after educational intervention by a post-test.

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MATERIALS AND METHODS

The cross-sectional study was conducted in VMKV Medical College & Hospital, Salem, Tamil Nadu, after it was approved by Institutional ethical committee. The study was conducted among doctors who participated in research methodology workshop during July 2012. The doctors, who underwent training were from pre-clinical departments, para-clinical departments and from clinical departments.

A Pre-structured, pre-test or pre-session proforma was used to assess the existing knowledge in basics of study designs in research methodology to the participating doctors, who comprised of 20 in number and the doctors who had come to observe the sessions, of 10 in number. Educational intervention was done with the help of Power point presentations, illustrations with examples and printed materials. The change in the knowledge was assessed by post-test/post-session questionnaire. The pre-test and post-test questionnaire contained same 10 questions related to study designs of research methodology. Each question was allotted one mark. The number of correct responses were the scores of the participants.

Before the session was started, pre-test questionnaire were given to the participants and observers, and instructed to complete them in a given duration of time. The pre-test questionnaire were collected and printed materials in the form of hand-outs were distributed to all participants as well as observers. The session included power point presentations, illustrations with examples and answering to the queries of the participants. At the end of the session, after the education intervention, post-test questionnaire were given to participants and observers. The change in the knowledge of research methodology was noted by the number of correct responses and scores were allotted to them. They were ranked into three categories as those, who had scored less than 3, scores of 4-7 and greater or equal to 8.

ANALYSIS

Statistical tests like Proportions and Chi-square test was used.

Data was tabulated on Microsoft excel sheets and analyzed using software SPSS.

RESULTS

Table 1 shows distribution of study group according to change in knowledge about various aspects of research methodology after educational intervention. The characteristics studied were related to Observational Study, Analytical Study, Descriptive Study, Formulation of Hypothesis, Cross- Sectional Study, Case Control Study, Cohort Study, Incidence of Disease Measurement, Odds Ratio and Relative and Attributable Risk.

The number of participants and observers, who gave correct response in pre-test included Observational Study 10(33.3%), Analytical Study 25(83.3%), Descriptive Study 12(40.0%), Formulation of Hypothesis 3(10%), Cross- Sectional Study 18(60%), Case Control Study 15(50%), Cohort Study 10(33.3%), Incidence of Disease Measurement 5(16.7%), Odds Ratio 15(50%) and Relative and Attributable Risk 22(73.3%). [n=30][Table 1]

The number of participants and observers, who gave correct response in post-test included Observational Study 15(50%), Analytical Study 26(86.7%), Descriptive Study 18(60.0%), Formulation of Hypothesis 20(66.7%), Cross- Sectional Study 26(86.7%), Case Control Study 22(73.3%), Cohort Study 19(63.3%), Incidence of Disease Measurement 15(50%), Odds Ratio 20(66.7%) and Relative and Attributable Risk 28(93.3%). [n=30][Table 1]

It is found that the total score in post-test under all aspects are more compared to pre-test scores, although there is a significant difference in the scores related to Formulation of hypothesis ($p < 0.001$) and Measurement of disease incidence. ($p < 0.005$) [Table 1]

Table 2, shows change in Knowledge scores on Research Methodology after educational intervention among study group. The participants who scored <3 marks in the pre-test constituted 13(43.3%), while in post-test it was 0(0%). The participants who scored 4-7 marks in the pre-test constituted 17(56.7%), while in post-test it was 12(40%). The participants who scored greater or equal to 8 marks in the pre-test constituted 0(0%), while in post-test it was 18(60%) [n=30].

The range of scores in pre-test was 2-6, and the range of scores in post-test was 4-10.

The mean score in pre-test was $3.76 \pm SD 1.039$ and the mean score in post-test was $7.43 \pm SD 1.83$. The differences in the score was statistically very highly significant. ($p < 0.001$) [Table 2]

Table 1: Distribution of study group according to change in knowledge about various aspects of research methodology after educational intervention.

| Characteristics | Pre Test (Correct)(%)n=30 | Post Test (Correct)(%)n=30 | Level of significance |
|----------------------------------|---------------------------|----------------------------|-------------------------|
| Observational Study | 10(33.3) | 15(50.0) | - |
| Analytical Study | 25(83.3) | 26(86.7) | - |
| Descriptive Study | 12(40.0) | 18(60.0) | - |
| Formulation of Hypothesis | 3(10.0) | 20(66.7) | $\chi^2=20.36, p<0.001$ |
| Cross- Sectional Study | 18(60.0) | 26(86.7) | - |
| Case Control Study | 15(50.0) | 22(73.3) | - |
| Cohort Study | 10(33.3) | 19(63.3) | - |
| Incidence of Disease Measurement | 5(16.7) | 15(50.0) | $\chi^2=7.5, p<0.005$ |
| Odds Ratio | 15(50.0) | 20(66.7) | - |
| Relative and Attributable Risk | 22(73.3) | 28(93.3) | - |

Table 2: Change in Knowledge scores on Research Methodology after educational intervention among the study group.

| Scores | Pre Test (%)n=30 | Post Test (%)n=30 |
|--|------------------|-------------------|
| Less than 3 | 13(43.3) | 0 |
| 4-7 | 17 (56.7) | 12(40.0) |
| Greater or equal to 8 | 0 | 18(60.0) |
| Mean score \pm SD | 3.76 ± 1.039 | 7.43 ± 1.83 |
| Range of scores | 2-6 | 4-10 |
| Level of significance $\chi^2 = 31.8, p < 0.001$ very highly significant | | |

DISCUSSION

The lack of a scientific training in the methodology of research is a great impediment for researchers in our country. Many researchers take a leap in the dark without knowing research methods.⁽³⁾

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically.⁽⁴⁾ In it we

study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them. It is necessary for the researcher to know, not only the research methods/techniques but also the methodology.⁽⁵⁾

Research Methodology consists of enunciating the problem, formulating a hypothesis, collecting the facts or data, analyzing the facts and reaching certain conclusions either in the form of solutions(s) towards the concerned problem or in certain generalisations for some theoretical formulation.⁽⁶⁾

When formulating research methodology workshop, it is critical to consider the change in the knowledge among the participants. For example, if one wishes to assess the efficacy of an educational intervention the "change in knowledge" must be measured. This lends itself to a pre-test/post-test methodology, which will determine the knowledge of study participants on a topic prior to the intervention and then again after the educational intervention has been implemented. However, in order to determine the actual impact of an intervention, a pre-test/post-test methodology must always be compared with a control group.⁽⁷⁾

The research methodology workshop helps the participants familiarize themselves with the dynamic trends of research methodology which would shape their research work in the proper direction. On completion of the workshop, participants will be able to do research preparation and planning and development of a research proposal.^(8,9)

The scope of research methodology is wider than that of research methods. Thus, when we talk of research methodology, we not only talk of the research methods but also consider the ideas behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using others, so that research results are capable of being evaluated either by the researcher himself or by others.⁽¹⁰⁾

CONCLUSION

Although doctors are familiar with research methodology

from their undergraduate teachings, only as a faculty, they are involved in it practically and hence reinforcing their knowledge is very vital for any medical college.

Thus, a systematic study of research methodology is an urgent necessity. Before undertaking research projects, researchers should be well equipped with all the methodological aspects. As Medical Council of India insists on publication of research papers, the doctors should have sufficient knowledge regarding various research methodologies, for them to take up different studies, analyze the data and sending for publication in various journals. As such, *efforts should be made to provide short duration intensive courses for meeting this requirement.*

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INTEREST OF CONFLICT - None

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