



Training Need Assessment of Bio-Medical Research among Faculty Members of Government Medical College, Srinagar

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Introduction

Bio-Medical research is a systemic collection, analysis and interpretation of data with its critical appraisal, used by physicians for establishing the scientific basis for treatment of patients and imparting evidence-based clinical care^{1,2}. It is a pivotal tool in amelioration of medical science. Expedition in surveillance and management of diseases chiefly depends on the essence of bio-medical research. The irresistible need for evidence-based medicine has besieged the understanding of bio-medical research.³ A wide gap exists between the cognizance for need of health research and its implementation.⁴ Every medical practitioner should put forth new evidences by conducting a research which ensures continued professional academic work and also enhances communication between physicians. For

research skills, a researcher must have adequate knowledge and a practical understanding of research methodology.⁵

In developing countries like India, to foster research culture the awareness of bio-medical research needs to be questioned as not being part of medical education system. Since medical science is evolving rapidly, there is a need for physicians to rejuvenate latest developments in their practice through application of scientific principles. The previous studies have documented that only 0.9% of medical students had shown interest in research through various programs.⁶

Utilization of research publications for purpose of promotion at work is a stimulant for greater involvement of medical doctors in research. Therefore, in institutions where such publications are needed for purpose of promotion, the

knowledge of bio-medical research should be appraised. On the other hand, to enhance the benefits of bio-medical research on clinical care there is a need to conduct training programs on research methodology to overcome all its barriers and to add to the existing awareness of research among doctors.^{7,8}

Aims and Objectives

1. To assess the need of training on research methodology among faculty members of GMC, Srinagar.
2. To evaluate the knowledge of research process among the same.

Materials and Methods

Study design: A cross-sectional study.

Study-participants and data collection: Three research methodology workshops were conducted by the department of Social and Preventive Medicine, Govt. Medical College during the year 2014 in three groups each comprising of 30 faculty members, from various departments (clinical, para-clinical and non-clinical) of same institution. Confidentiality of participants was maintained. The workshop included sessions on various aspects of research methodology viz. anatomy and physiology of research, formulation and discussion of a research question, concepts of research design, sampling and data management. After seeking the verbal consent, a predesigned self-administered questionnaire was given to the participants both at the beginning (pre-test) and end of the workshop (post-test). The questionnaire consisted of 15 multiple choice questions related to the topics discussed with participants during the workshop.

For each question the percentage of correct answers was calculated as a representative of their knowledge. At the end of the workshop, outcome evaluation of sessions and workshop was done by using Likert scale that would help to understand how future training may be modified to respond best to the needs of participants.

Statistical Analysis: The data was expressed in percentage and was analyzed using descriptive statistics.

Results

Among the 90 faculty members, there was an improvement of nearly 30% in the level of knowledge regarding the different components of the research process after the workshop. It was found that there was a gain of 28% and 30% in the knowledge of research design and variables, respectively. The awareness regarding sampling increased to 20% after the workshop (Table 1). More than 50% of the participants graded sessions of workshop as excellent and none of them reported them as poor or very poor (Table 2).

77% of the members strongly agreed that workshop was a useful learning experience and nearly 100% found it interactive and relevant (Table 3).

Regarding components of research training that participants would like to be improved in future training include statistics, sampling, Randomized Controlled Trials, level II training and more number of workshops to be organized in future (Figure 1).

Table 1 Assessment of knowledge about bio-medical research among the faculty members (n=90)

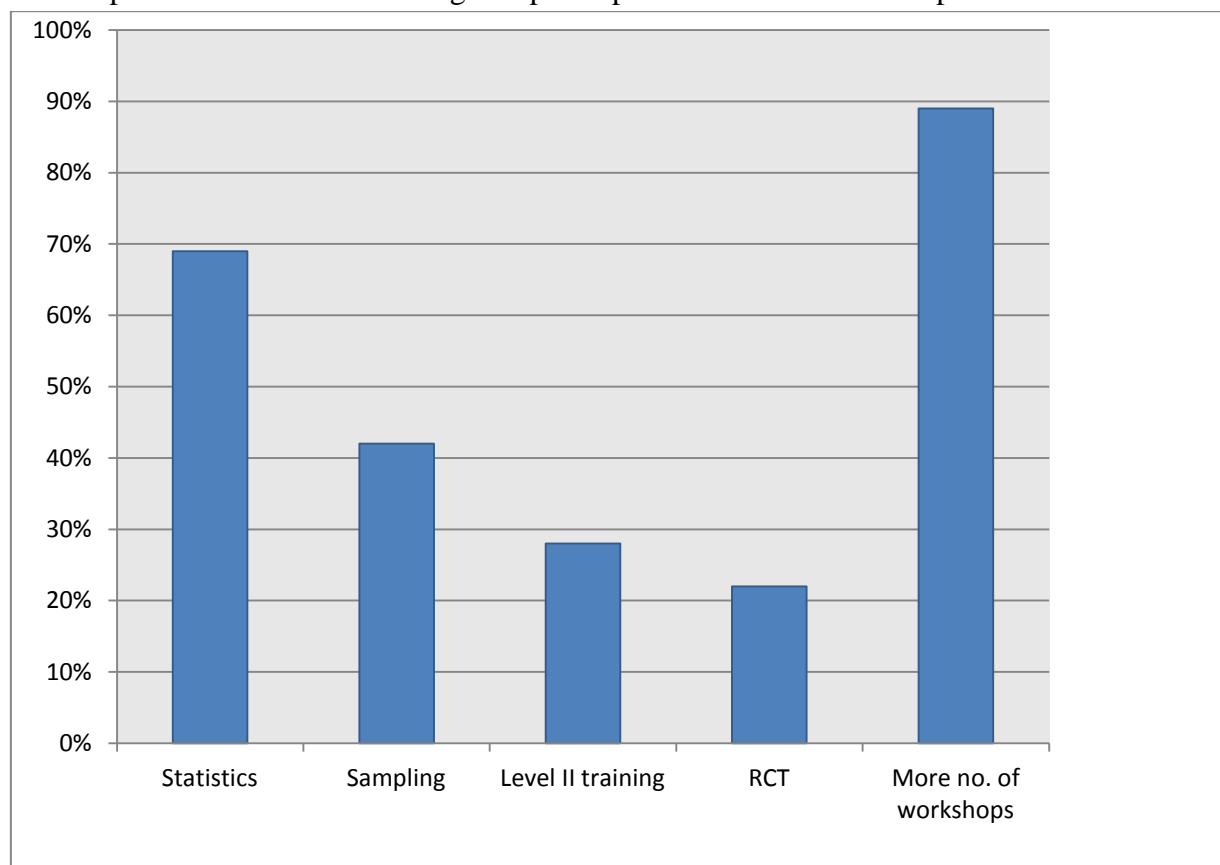
S.NO.	QUESTIONS	CORRECT ANSWERS IN PRE-TEST (%)	CORRECT ANSWERS IN POST-TEST (%)	TOTAL IMPROVEMENT POST-WORKSHOP (%)
1	What is the statement of purpose in a research hypothesis?	70	81	11
2	What factors are to be considered regarding feasibility of research?	87	87	--
3	Which type of research provides the strongest evidence about existence of cause & effect relationship?	33	45	12
4	What are the examples of quantitative variables?	46	70	24
5	Which of the following can be described as a categorical variable?	55	75	20
6	Secondary/existing data may include which of the following?	80	88	8
7	Which statement is true regarding open-ended and close-ended questionnaire?	20	32	12
8	When each member of population has an equal chance of being selected, this is called?	79	95	16
9	Which of the following is not a form of non-random sampling?	11	35	24
10	Which type of validity allows generalization of results?	53	88	35
11	Name the process of marking segments of data with symbols, descriptive words or category names?	20	60	40
12	A variable of special interest, the variation of which we want to explain is?	25	54	29
13	After review of scientific literature, next step in research process is?	13	47	34
14	Exposure to violence in mass media is related to likelihood of committing a violence act. Here exposure to violence is ?	41	72	31
15	Field of statistics may be defined as?	43	95	52

Table 2 Outcome evaluation of sessions using Likert scale to determine effectiveness of Workshop in teaching participants the desired material (n=90)

SESSION	EXCELLENT (%)	V. GOOD (%)	GOOD (%)	FAIR (%)
Introduction to participants	50	36.6	13.4	--
Anatomy and physiology of research	56.7	40	3.3	--
Formulating a research question	51	34	8	7
Discussion of research question	46.6	36.6	16.8	--
Conceptualizing research design	36.6	46.8	13.3	3.3
Group activity on research design	43.3	26.6	16.6	13.5
Sampling	67	33	--	--
Discussion on sampling	46.7	50	3.3	--
Study instrument	54	40	6	--
Discussion of study instrument	50	46.6	3.4	--
Data management	40	60	--	--

Table 3 Outcome evaluation of workshop using Likert scale (n=90)

Workshop evaluation	Agree (%)	Strongly agree (%)
Workshop venue Comfortable Well located	52 44.4	48 55.5
Workshop content Relevant Comprehensive Easy to understand	42 31.25	100 58 68.75
Workshop handouts Supported presentation material Provided useful information Clear and well organized	30.4 6.25	69.6 100 93.75
The workshop was a good mixture between listening and activities	17	83
The activities were useful learning experiences	18	72
Facilitators were Knowledgeable Well prepared Responsive to participants questions	21 88 25	79 11 75

Figure 1 Components of research training that participants would like to be improved in future training

Discussion

Our study was carried out to assess the awareness of faculty members of Government Medical College, Srinagar towards research and to find out whether the current methods of training and facilities are adequate to foster the research culture.

In the present study, we found that 45% of the participants gave correct answers in the pre-test which increased to nearly 70% in the post-test. The knowledge and pre-requisites of research were fairly good among the faculty members but very few of them could transform it into practice. Similar results were obtained in a study done by Pavar D.B et al (2012)⁶ among 100 resident doctors working in a tertiary care hospital Mumbai, India where they found concept of research was known to 58% of participants and 88% of them were interested in conducting research training in future. Giri P.A et al (2014)² conducted a study on bio-medical research among 116 post-graduates and found that only 18.9% of them were acquainted with concept of research

and 70.7% were willing to participate in future workshops for research methodology. A study was carried in Madison, USA among 143 post-graduates in which 85% felt that research experience was winsome and 48% were interested in pursuing research activities during residency.⁹ Previous studies have identified lack of quality time for research, busy clinical practices, financial constraints, inadequate mentorship, insufficient statistical support, restricted access to literature and poor awareness as the major barriers to bio-medical research.⁴ Therefore, it is recommended that workshops on research methodology should be frequently conducted to provide basic research knowledge to all doctors. Bio-medical research should be introduced as a mandatory part of the curriculum of undergraduate and post-graduate medical education in India along with its formal evaluation in university examinations to ensure that doctors do learn the aspects of research methodology. Conferences, workshops and journal clubs should be organized for medical teachers and resident doctors on regular basis.

Research publications should be made mandatory for the purpose of promotions of faculty members and preferences should be given to those having maximum number of publications. In institutions where research publication is not needed for promotion, incentives and reward system should be started to enhance the practice of bio-medical research. If steps are not taken at an early stage, the quality of research and its application may be compromised.

Conclusion

In conclusion we report that despite having fairly good knowledge about biomedical research, yet the faculty members were in need of research training courses and thus should be made a part of medical education curriculum to conceptualize scientific principles about research and transform it into practice in order to prop up meaningful evidences by doctors.

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