

# Enhancement of Scientific Writing Skills of Medical Teachers through Scientific Writing Workshop

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## ABSTRACT

**Introduction:** The twelfth 5-year plan put special emphasis on enhancing the quality research in the health sector. Postgraduate doctors and faculties face difficulties in scientific writing and research methodology. There are many books and journals which help in learning the scientific writing process; however, workshops for writing and peer support are reported as the most successful strategies. Therefore, the present study was conducted with the objectives (1) to assess the learning expectations of medical teachers regarding scientific writing and (2) to assess the increase in awareness related to different issues of scientific writing among participants through workshop.

**Materials and methods:** A 3-day workshop on scientific writing was conducted from 1st to 3rd December 2014 in SMS Medical College of Jaipur. Out of 30 faculty members, 27 participated in the workshop. All participants' knowledge was evaluated using a question-based pretest performance that was repeated at the end of the training. A reaction form was also filled by participants at the end of the workshop.

**Results and conclusion:** There is a statistically significant improvement of 2.76 in the score of posttest evaluation (CI is 2.29–3.21). Approximately, 93% of participants revealed that they learned about how to write a simple and effective article, make small but effective sentences, and avoid verbatim and difficult words. Almost two-third of the participants gave feedback on their learning about measurable objectives and 45% of respondents gave feedback about learning of the Vancouver and Harvard method for bibliography. Almost 70% of respondents felt confident enough to conduct such workshops on their own level. All respondents (100%) gave the feedback that they learned about avoidance of repetition and irrelevant things and the importance of "revise, revise, and revise." Do's and Don'ts in writing were the most interesting part for all the participants. All the respondents were concerned to learn more about sample size calculations and 93% of respondents were interested in detailed statistical analysis. The study concluded that workshops on scientific writing skills are enormously helpful and should be organized more frequently.

**Keywords:** Medical teachers, Scientific writing, Workshop.

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## INTRODUCTION

The twelfth 5-year plan put special emphasis on enhancing the quality research in the health sector. Ideally, 2% of the total budget of health should be spent on research. Tertiary care centers particularly teaching institutes have more responsibility for research activities. It was observed during annual plan presentations of proposed research work under the Research Review Board that our postgraduate doctors and faculties face difficulties in scientific writing and research methodology. Medical Council of India (MCI) has made publications mandatory for the promotion of faculties. This has further accentuated the need for conducting research with appropriate methods and writing work in a scientific manner. This would enhance the probability of publication of our research work.

Although educational innovations in medical education are increasing in number, many educators do not submit their ideas for the publication.<sup>1</sup> Also, there exists a substantial amount of unpublished work due to lack of proper writing skills. Perceived obstacles to writing include time constraints, anxiety, lack of confidence, and procrastination.<sup>2–5</sup>

There are many books and journals which help in learning of scientific writing process. Writing workshops<sup>6–8</sup> and peer support<sup>9</sup> are reported as the most successful strategies. Hence, in light of this background, the present study was conducted to assess learning expectations of medical teachers regarding scientific writing and to assess the increase in awareness related to different issues of scientific writing among participants through workshop.

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## MATERIALS AND METHODS

### Framework of the Workshop

A 3-day workshop on scientific writing was conducted from 1st to 3rd December 2014 in SMS Medical College of Jaipur after getting the approval from the Principal and Controller. It was an initiative of the Department of Community Medicine and Research Review Board in collaboration with the Department of Community Health Administration, National Institute of Health and Family Welfare. Six departments out of 18 were randomly selected. Five faculties from each selected department were enrolled to participate in the workshop. Twenty-seven faculty members participated in the workshop. The facilitators for the workshop were well versed with the scientific writing as well as had vast experience of training.

Experts from community health administration, epidemiology, and executive editor of a publication house were involved in facilitating the workshop.

Interactive sessions, powerpoint presentations, group activities, case studies, and handouts and exercises were used. Topics covered in the workshop were concept introduction, method, and discussion (IMRaD) of IMRaD (lecture–demonstrations, L/D, and exercise), writing introduction, style of writing, how to write discussion and conclusion, how to write results, validity of data and interpretation of statistical tests, group work on methodology and results, communication with journal editor for publication, methodology, writing an abstract, ethical issues in research/scientific writing, writing titles, and references. Lecture–demonstrations and exercises were extensively used to introduce the above-mentioned topics.<sup>10–12</sup>

Expectations of trainees were asked at the beginning of the workshop by a course team. Participants' knowledge was assessed using a questionnaire at the beginning as well as at the end of the workshop. This questionnaire has 10 questions on various aspects of scientific writing and research methodology. It was prepared by a team of three faculties at the Department of Community Medicine, SMS Medical College. A reaction form was also filled by participants at the end of the workshop.

## RESULTS

The mean score of pretest evaluation was 4.85 (±1.19) and the mean posttest score was 7.61 (±1.25). There was a statistically significant improvement posttest score by 2.76 (confidence interval 2.29–3.21, paired *t* test = 12.325 at *df* 26 *p* < 0.001) (Table 1). Postworkshop feedback showed impressive results (Table 2).

Twenty-five (93%) participants said that they improved skills to write a simple and effective article, make small but effective sentences, and avoid verbatim and difficult words. Seventeen (63%) participants stated that they gained clarity of ideas about research, and 12 (45%) respondents reported that they learned the Vancouver and Harvard method for bibliography. Further, 19 (70%) respondents felt confident enough to conduct such workshops on their own level, whereas 8 of them (3%) told that they require assistance. All respondents stated that they learned about avoidance of repetition, importance of “revise, revise, and revise,” and “Do’s and Don’ts” in writing papers (Table 2).

## DISCUSSION

The Indiana University School of Medicine conducted an in-depth 2-day workshop plus individual tutorials designed to enhance faculty academic writing skills, the majority (87%) of faculties perceived that there was a significant improvement in the confidence level after completing the workshop. In our study also, approximately, 70% of the participants agreed that they are confident enough to conduct such workshops on their own level after completing this workshop.<sup>10–12</sup>

In a study by Bydder et al.,<sup>6</sup> an improvement in the required writing skills and understanding the structure of scientific articles were observed. Participants found the workshop useful and recommended more of these workshops in the future. Half of the participants felt that the workshop has motivated them to publish. Similarly, Guilford<sup>13</sup> revealed a dramatic increase in understanding of publishing process and peer review. Students strongly agreed

**Table 1:** Evaluation of pre- and posttest scores of participants

S. no.	Pretest score	Posttest score	Level of significance
1	5	6.5	Average improvement of score = 2.76 (confidence interval = 2.29–3.21) Paired <i>t</i> test statistic = 12.325 <i>df</i> = 26 <i>p</i> < 0.0001
2	4.5	6	
3	4	6.5	
4	5	8	
5	5	8	
6	6.5	10	
7	5	8	
8	6	8	
9	5.5	9	
10	4	6.5	
11	3.5	6	
12	5	6	
13	4	5.5	
14	4.5	7.5	
15	4	6	
16	3	6.5	
17	4	7.5	
18	2	7	
19	7	8	
20	5	9	
21	6	8	
22	4	10	
23	6	8.5	
24	4	8	
25	5.5	7.5	
26	6	9	
27	7	9	
Mean score (SD)	4.85 (1.19)	7.61 (1.25)	

that the quality of their papers would improve as they have come to know how to write a manuscript for publication in a professional “style.” However, very few students agreed that they have acquired the desired skills for writing a scientific article, the majority said, they need more practice to change the way they write in the future. All students felt that the experience was helpful and practical. Ninety-one percent of students responded favorably to peer review. Seventeen percent of students indicated that writing the paper and engaging in peer review were their favorite aspects of the course. In contrast, when the term paper approach was used, none of the students listed the writing of the paper as their favorite aspect of the course.

## CONCLUSION AND RECOMMENDATIONS

The study concluded that workshops on scientific writing skills are enormously helpful to increase writing skills of the medical professionals. So these types of workshops should be organized more frequently. This may lead to an increase in the number of future publications. Along with this, unpublished work may get an opportunity to get recognition by overcoming the obstacles of lack of enough skills.

**Table 2:** Participants' feedback

S. no.	Feedback	No. of participants (n = 27)	%
1	<i>Writing skills they learnt</i>		
a.	How to write simple and effective article. Make small sentences, avoid verbatim, difficult words	25	92.59
b.	Clarity of idea of research, measurable objectives	17	62.96
c.	Repetition has to be avoided/how to avoid irrelevant things	27	100
d.	Writing sequence/flow of writing with taking one idea of research to all the section of article	11	40.74
e.	Do's and Don't of all section of article writing	24	88.88
f.	Vancouver and Harvard method for bibliography	12	44.44
g.	Importance of "revise, revise, and revise" in writing	27	100
2	<i>Teaching skills learnt</i>		
a.	Group discussion or interactive sessions	24	88.88
b.	Exercise based hands on practice	19	70.37
c.	Two way of communication	27	100
d.	How to teach difficult topic in a simple manner	9	3.33
3	<i>What did they like most about the workshop</i>		
a.	Do's and Don't of each section of writing	27	100
b.	Flow of delivery of concepts and idea	12	44.44
4	<i>Whether they find themselves confident to conduct such workshop at their level</i>		
a.	Yes	19	70.37
b.	Need little assistance	8	2.96
5	<i>Skills they would like to learn more about?</i>		
a.	Detailed sessions on statistical analysis	25	92.59
b.	Sample size calculation	27	100

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