

Impact of a Focused Thesis Writing Workshop on Knowledge and Confidence of Medical Postgraduate Students: A Cross-sectional Study



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ABSTRACT

Background: The National Medical Commission (NMC) of India requires medical postgraduate students to conduct research in the form of a thesis or dissertation. However, students often face challenges throughout the process, including topic selection, protocol approval, data collection, and thesis writing. This study aimed to assess the effectiveness of a 1-day focused thesis writing workshop in improving the knowledge and confidence of medical postgraduate students.

Methods: A cross-sectional mixed-methods study was conducted involving 68 postgraduate students from various medical disciplines who participated in a thesis writing workshop. Participants were administered pre- and post-test questionnaires to assess their knowledge of key thesis writing components, including literature review, results, discussion, and conclusion. The workshop included interactive sessions on each of these topics. Descriptive and inferential statistics were used to analyze the results, and qualitative feedback was gathered to assess participant satisfaction and perceived improvements in confidence.

Results: The pre- and post-test scores showed a significant improvement in knowledge, particularly in the areas of literature review, results, and discussion ($p < 0.05$). However, the improvement in knowledge regarding thesis conclusions was not statistically significant. Feedback from participants indicated high satisfaction with the workshop, with 85% reporting increased confidence in their thesis writing skills. The majority of students (78%) found the workshop relevant and helpful in enhancing their understanding of thesis writing.

Conclusion: A focused, 1-day workshop significantly improved the knowledge and confidence of medical postgraduate students in thesis writing. This suggests that such workshops can be an effective intervention to support postgraduate students in completing their research. The study advocates for the integration of similar workshops into postgraduate curricula. Further research with larger, multicenter studies is needed to evaluate the long-term impact and feasibility of institutionalizing such programs.

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INTRODUCTION

The National Medical Commission (NMC) of India mandates conducting research work in the form of a thesis or dissertation as an essential part of a medical postgraduation degree course.¹ However, medical students doing postgraduation encounter lot of challenges in various stages of their thesis work, starting from choosing a research topic, finalizing their protocol, getting ethics approval, conducting the research work, collecting data appropriately, constructing the master chart, analysis and presentation of results, as well as writing the discussion and conclusion.^{2,3} Thesis phobia in medical postgraduate students is mainly due to lack of knowledge about conducting research properly as well as in writing the thesis.⁴

Previous studies have shown that multiple factors can affect thesis quality, including student-related factors such as knowledge, sincerity, commitment, socioeconomic conditions, communication skills, and time

management; institutional conditions, such as cooperation, guidance, budget, infrastructure, and facilities; and supervisor-related factors such as knowledge, interest, and approachability.^{5,6} Lack of adequate time due to a vast curriculum of postgraduate subjects (59.5%), lack of a structured research curriculum (25%), and inadequate facilities (25.8%) were stated as major obstacles to pursuing research by postgraduate students in a study from Maharashtra, India.⁷

Many of the medical colleges currently run an orientation program for the recently joined postgraduate students to orient them about how to write their thesis protocol. However, in the majority of medical colleges, no systematic training is provided to the postgraduate student thereafter, and the student is solely dependent upon his or her thesis guide's experience, expertise, approachability, and availability of adequate time to help them in this endeavor. As per Ghadirian et al., thesis quality is

highly dependent on the supervision received by the postgraduate students.^{6,8} A study from South Africa, done among 34 postgraduate students who engaged in research, revealed that communication breakdown, poor feedback, nonavailability of some supervisors, and lack of ethical consideration were some of the major factors that contributed to the negative experiences of the students who participated in research.⁹ In a study by Changiz et al., it was observed that the majority of tutors did not devote sufficient time for reviewing and correcting the thesis. Over 40% of the faculty members considered financial problems, administrative difficulties for proposal approval, and lack of technical support, such as statistical consultations, the main obstacles in the way of the research process, while the majority believed that students' lack of time, delay, and contradictory decisions by different levels of supervising committees were the barriers to research.¹⁰

Medical students need guidance and hand-holding at various levels to make thesis writing easier for them and to ensure a better and meaningful contribution to the medical scientific literature.¹¹ Some of the steps that can be taken for easing the stress due to thesis include regular organization of thesis writing workshops for medical students, training of young or new faculty in various aspects of thesis writing, giving more weight to research methodology during undergraduation, providing grants for carrying out research projects, and providing free access to various research articles. Motivating the students and showing appreciation by giving awards for the few best theses in the institution, with preference given to challenging or new

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research topics, has also been shown to boost their aptitude for research.¹²

However, there is a paucity of studies that evaluate the impact and utility of thesis writing workshops conducted for medical postgraduate students. In this study, we attempted to determine the effect of a 1-day training workshop on thesis writing for medical postgraduate students and to assess improvement in their knowledge and confidence about various aspects of thesis writing, following this focused thesis writing workshop.

METHODOLOGY

This cross-sectional, mixed-methods study was planned to assess the improvement in knowledge and confidence of postgraduate students following a focused 1-day thesis writing workshop for them. The study was initiated after obtaining approval from the Institutional Ethics Committee, and the participants were enrolled after obtaining informed consent from them. All the medical students pursuing postgraduation in any specialty, who had already submitted their thesis protocol, obtained clearance from the Institutional Ethics Committee, and started their thesis work were invited to participate in this study. Postgraduate trainees who had already submitted their final thesis work to the university were excluded from this study. All the heads of the departments, as well as the postgraduate education coordinator from each of the clinical and paraclinical departments of our institute were approached, and a request was made to encourage participation of as many postgraduate students as possible for this workshop. The program schedule and flyers were disseminated among all postgraduate students through the Dean's office. Participation of postgraduates in this workshop was voluntary. The interested postgraduate residents had to fill a registration-cum-pretest form, in the form of a Google form that was circulated among the residents of all the departments. It included some questions pertaining to the demographic details of the study subjects along with 15 questions testing their thesis-writing-related knowledge, encompassing various aspects of review of literature, results, discussion, and conclusion. The first 4 of the 15 questions were pertained to the knowledge about review of literature, question numbers 5–9 assessed the knowledge about results, 10 and 11 about the conclusion, and 12–15 about the discussion. The posttest consisted of the same set of knowledge-based questions along with additional questions for capturing

the feedback of the postgraduate residents about this focused workshop. It included questions that required the participants to rate their satisfaction with the thesis writing workshop on a 5-point Likert scale (1 = highly unsatisfied to 5 = highly satisfied) and the change in the confidence of study participants after attending the workshop as compared to before attending the workshop (1 = decreased a lot to 5 = increased a lot), and two open-ended questions. Both the questionnaires were reviewed by two expert faculty, and a pilot run was done on two postgraduate students who were not included in the study before actually administering the questionnaire to everyone.

The workshop module was designed by a team of faculty, with one of the team members already trained in the advanced course in Medical Education. Two external experts, who were faculty of medical education units of two reputed government medical colleges of Delhi, were also involved in the planning and execution of this workshop. These external experts supervised the conduct of this workshop and provided additional valuable inputs as well. The sessions for this workshop covered details about writing a review of literature, presentation of results, including the use of tables and figures, and writing a discussion and conclusion.

Data were analyzed using SPSS 20.0. Descriptive analysis was done, and the results were presented in the form of medians with interquartile ranges and proportions. The Wilcoxon signed-rank test was used to compare the quantitative data. The *p*-values < 0.05 were considered significant. The qualitative data were recorded through the use of some open-ended questions, administered along with the posttest, and analyzed using rapid content analysis. Grounded theory was used to generate relevant themes. The

themes with some select quotations have been presented.

RESULTS

The pretest-cum-registration form for the thesis writing workshop was filled by 105 participants. The workshop was attended by 80 participants, of whom 68 participants filled the posttest form and were included in the final analysis. Out of the 68 study participants, 43 (63.2%) were females and 25 (36.8%) were males. The maximum number of participants was from the pediatrics department (27.9%), followed by anesthesiology department (16.2%). The department-wise breakup of study participants is shown in Figure 1.

The mean pretest score of the 68 study participants was 7.68 ± 3.35 , with a median and IQR of 7 and 5, respectively, while the mean post-test score was 10.49 ± 4.15 , with a median and IQR of 13 and 7, respectively. Wilcoxon signed-rank test revealed a significant improvement in the posttest scores as compared to the pretest, with a *p*-value of <0.05. The observations found on the component-wise analysis of the pretest and post-test questions before and after conducting the thesis writing workshop are shown in Table 1.

Significant improvement was observed in all aspects of thesis writing except the conclusion. Figure 2 also highlights the changes in mean knowledge score (percentage) in the domains of review of literature, results, discussion, and conclusion before and after the thesis writing workshop. It shows that the pretest score about knowledge related to writing a conclusion was good ($74.3 \pm 35.1\%$), and although the post-test score showed some improvement ($80.8 \pm$

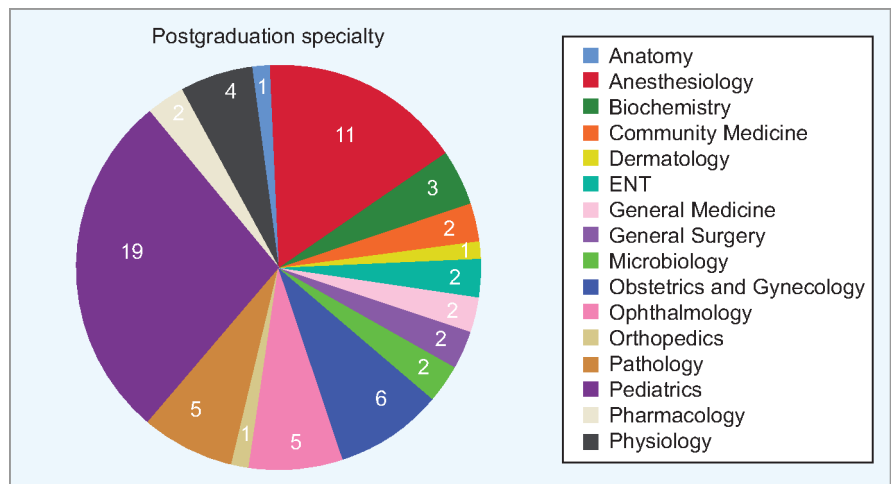


Fig. 1: Distribution of study participants based on specialty

32.4%), this difference was not found to be statistically significant.

The feedback obtained from the students suggested that the majority of the study participants felt that the thesis writing workshop was relevant (78% participants), and helped in increasing their knowledge (68% participants). About 85% of students rated their confidence about the thesis writing workshop as 4 or 5 on a Likert scale of 1–5, while 90% of students rated their overall satisfaction with the thesis writing workshop as 4 or 5. Qualitative analysis of two of the open-ended questions asked in the post-test, that is, “What did you like most about the workshop?” and “Suggestions on how to improve the workshop,” was done. Two of the investigators independently analyzed the feedback received from each of the participants and identified the various themes, as shown in Table 2. Some of the noteworthy responses received from the participants were: “Thesis writing is no longer a headache!” and “The workshop was very insightful and well organized!”

DISCUSSION

The present study aimed to determine the effect of a 1-day focused training workshop

on thesis writing for medical postgraduates and to assess their improvement in knowledge and confidence following the same. We also obtained feedback from the study participants to improve future workshops. This focused thesis writing workshop for postgraduate residents led to significant improvement in the overall knowledge about thesis writing. Further analysis revealed significant improvement in the knowledge about writing a review of the literature, results, and discussion. However, statistically significant improvement was not seen in the knowledge score related to the conclusion. This was possibly because the pretest score percentage for knowledge related to conclusion was already quite high, so even though an improvement in knowledge about conclusion was seen in the posttest, it was not of statistical significance. The result of our study is similar to the significant improvement observed by Singh et al., while comparing the pretest (5.86 ± 1.75) and posttest scores (11.82 ± 2.47), following a workshop on biomedical research for 1st-year medical undergraduate students.¹³

Lack of a structured training program fails to ensure the production of high-quality research work from the medical postgraduate students. A cross-sectional

study by Ibrahim et al. revealed that knowledge about research was generally low among medical students and interns. This further underscores the need for structured training of medical undergraduate as well as postgraduate students in research methodology and research paper or thesis writing. In their study, participants who received research training had significantly higher knowledge scores compared to others ($p < 0.001$).¹⁴

The impact of proper, focused training sessions about thesis writing for postgraduate residents goes beyond medical students and promotes better medical research, and can translate into improvement in evidence-based patient care and self-capacity and confidence building for the residents themselves. While there are some structured faculty development programs mandated by NMC, there is a dearth of any such structured intervention for training of postgraduate students in various aspects of thesis writing. Even though obtaining passing marks in the basic course in biomedical research has been recently made compulsory for the medical postgraduates by the NMC, this course is in the form of a noninteractive, online, distance-learning program that covers broad concepts of medical research but is not focused enough to help medical postgraduates in conducting and writing their postgraduation thesis confidently. There has been a felt need among the medical postgraduates for guidance about various aspects related to their postgraduate thesis.

A prospective study from South India provided intensive support to 27 postgraduate students throughout their six-semester course, which included orientation for guides, research methodology workshop for students, and presubmission external review in the first semester, mid-2nd-year review in the fourth semester, and presubmission (final dissertation) and selection for award and workshop for paper submission in the fifth semester. Out of the 27 dissertations included in that study, 19 papers (70.4%) were published within a span of 1 year, and 8 were in various stages of publication. They concluded that with sustained guidance and support from the institution, students perform very well, leading to improved publication status.¹¹

The feedback received from the study participants revealed that most of the students

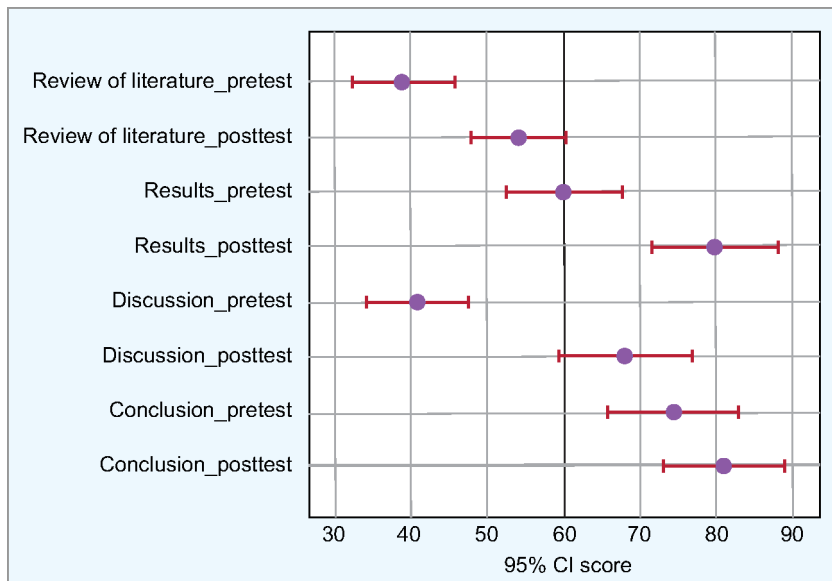


Fig. 2: Improvement in mean knowledge score (percentage) in the domains of review of literature, results, discussion, and conclusion before and after the thesis writing workshop

Table 1: Pre- and post-test scores reflecting the knowledge about various aspects of thesis writing

	Pretest score Median% (IQR)	Posttest score Median% (IQR)	p-value
Review of literature	37.5 (25–75)	100 (60–100)	0.000
Results	60 (40–80)	100 (60–100)	0.000
Discussion	25 (25–68.8)	75 (25–100)	0.000
Conclusion	100 (50–100)	100 (50–100)	0.214

Table 2: Qualitative analysis of feedback

<i>What did you like most about the workshop?</i>	<i>Number of responses</i>	<i>Percentage (%)</i>	<i>Suggestions on how to improve the workshop</i>	<i>Number of responses</i>	<i>Percentage (%)</i>
Detailed information provided	13	19.1	No improvement required	46	67.6
Everything was perfect	11	16.2	To include more hands-on exercises	12	17.6
All the concepts were well explained	10	14.7	To be conducted more frequently	8	11.8
Helped to solve doubts	7	10.3	To be conducted over more time	7	10.3
Do's and don'ts of thesis writing made clear	5	7.4	To be conducted during the 1st year of postgraduation	5	7.4
Easy to understand	5	7.4	To be made more interactive	3	4.4
Good method of teaching	4	5.9	To include time management strategies for completion of thesis	2	2.9
Crisp and focused	3	4.4	To be conducted in multiple languages	2	2.9
Good faculty	3	4.4	To be conducted in hybrid mode (offline and online)	1	1.5

felt that the workshop was very relevant for them and they perceived a definite improvement in their confidence and knowledge about various aspects of thesis writing. About 90% of the study population felt that focused training about thesis writing should be a part of the medical postgraduate training course. These results are in line with those seen by Singh et al., who found that 49.48% of students strongly agreed that contents discussed in the workshop were adequate, 61.85% agreed about better understanding of the topics of the workshop, 60.80% agreed that their queries and doubts were cleared, 53.6% agreed that the workshop motivates them to do research, and 44.3% agreed that they will attend the similar workshops in future.¹³ In a study by Giri et al., it was found that majority of the enrolled (91.4%) students believed that patient outcome improves with continued medical research and 70.7% are willing to participate in workshop for research methodology.⁷

One of the major strengths of our study is that we have been able to demonstrate the utility of a single-day focused thesis writing workshop, which can be easily incorporated in the postgraduate teaching program of any institute and can be of definite benefit to the students. The involvement of postgraduate students from a wide variety of clinical and paraclinical specialties further reiterates the importance of holding such training sessions for medical postgraduate students across different disciplines. The mixed-method design added value to the study as there was an emergence of valuable feedback and suggestions from the postgraduate students, which might have gone unnoticed in a purely quantitative study. However, we acknowledge that the results may not be generalizable due to a moderate number of participants enrolled and it being a single-center study. Nevertheless, the results are still very important and need further validation in

larger, multicentric studies. A 1-day workshop might be insufficient to expect a major change in thesis writing, but the confidence improvement definitely is an indicator that the workshop was an effective sensitizer and motivator, and these residents need to be followed up in the long term to assess the impact of this workshop on their teaching and assessment practices. Imparting more structured training about the various aspects of conducting and drafting a medical postgraduation thesis is definitely a need of the hour, and the medical regulatory bodies should consider making it a mandatory part of the medical postgraduation curriculum.

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