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Original Research Article

Beyond awareness: a cross-sectional analysis of knowledge, attitude and practice gaps in thesis writing among postgraduates in a tertiary care institute

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ABSTRACT

Background: Thesis writing is an integral component of postgraduate medical education in India. While academic institutions expect PGs to be proficient in research methodology and scientific writing, the actual level of knowledge, attitude and practice (KAP) among students remains under-explored. To assess the KAP related to thesis writing among postgraduate students and to identify gaps between these domains.
Methods: A cross-sectional study was conducted among 101 first-year postgraduate students at a tertiary care institute using a structured, validated questionnaire. The KAP domains were scored and analysed descriptively, with Spearman's correlation applied to explore inter-domain relationships.
Results: Among 101 respondents, high correct response rates were observed for knowledge on thesis components (80.2%), study design types (82.2%) and research ethics (90.1%). However, awareness of referencing styles (39.6%) and reference management tools (30.7%) was poor. Despite 91.1% expressing willingness to seek thesis guidance and 86.2% believing thesis writing supports academic growth, only 10.9% had attended formal training and 35.6% used reference management software. Structured thesis planning was reported by 70.3%, but overall practical implementation lagged behind knowledge and attitude scores.
Conclusions: A clear gap exists between awareness and implementation of thesis-writing skills among postgraduates. Structured workshops, digital literacy training and mentorship are essential to enhance practical research capabilities and ensure high-quality academic output.

Keywords: KAP study, Medical education, Postgraduate education, Research methodology, Reference tools, Thesis writing

INTRODUCTION

Postgraduate medical education is undergoing a critical evolution, with research now recognized as a key pillar alongside clinical practice and academics. In India, the National Medical Commission mandates submission of an original research thesis as part of postgraduate training, underscoring the centrality of research competence in modern medical practice.[1] Despite this, many newly enrolled postgraduate students lack formal exposure to scientific writing, research methodology and ethical approval processes at the time of their induction. Thesis writing represents not only an academic requirement but also an opportunity to develop critical thinking, methodological rigour and a lifelong orientation towards evidence-based medicine. The thesis-writing journey can be likened to the mythological "Samudra Manthan," where sustained effort yields valuable outcomes- highlighting the

need for structured, stepwise inquiry to derive meaningful, scientifically valid conclusions.[2] However, postgraduate trainees often face challenges such as limited mentorship, lack of early orientation and inadequate understanding of research design, factors that can adversely affect the quality and timely completion of their theses. Recognizing these challenges, this study aims to assess the baseline KAP regarding thesis writing among newly admitted medical postgraduates. By identifying existing gaps and training needs, this work seeks to contribute toward strengthening research capacity and fostering a more academically empowered medical workforce.

METHODS

Study design

Approval from Institutional Ethics Committee was obtained. This study followed a cross-sectional design and employed a structured, questionnaire-based approach to assess the knowledge, attitude and practices of medical postgraduate students from February to May 2025. Data collection was carried out using an online Google Form, ensuring ease of access and broad reach within the target group.

Study population

The study was conducted among newly admitted postgraduate medical students at MGM Medical College and MY Hospital, Indore 2026 admission batch. First-year students who had recently enrolled and were willing to participate were included in the study. Those who had past experience of thesis writing and submission were excluded to maintain the focus on students in the initial phase of their research training

Data collection and scoring

A structured, self-administered questionnaire was designed using Google Forms to assess the KAP of postgraduate students regarding thesis writing. The questionnaire was circulated online among eligible postgraduate students via institutional communication channels. The overall KAP score was derived by aggregating individual scores from the three domains, Knowledge (0–10), Attitude (5–25) and Practice (0–5), yielding a total possible score ranging from 5 to 40. A higher total score denoted greater awareness, a more constructive outlook and more effective practices related to thesis writing and academic research. Additionally, questions with >80% correct/agreement were considered "well-acknowledged," whereas those with <50% correct or "Yes" responses were identified as potential gaps in knowledge or practice.

Data analysis

Data were entered into Microsoft Excel 2024 and exported to SPSS Statistics (version 26.0) for analysis. Frequencies, percentages, means and standard deviations were used to summarise demographic variables and KAP scores. To explore relationships between KAP domains, Spearman's rank correlation was applied to the total scores for each respondent. A p value of <0.05 was considered as statistically significant.

RESULTS

Knowledge toward thesis writing among postgraduates

A total of 101 postgraduate students participated in the study. The mean knowledge score was 6.16±1.42 (out of 10), indicating moderate understanding of thesis writing fundamentals. As seen in table 1, the highest correct response was for research ethics (90.1%) and the lowest for reference management tools (30.7%). The concepts in which the scores of correct responses were greater than 80% were considered a well- acknowledged. The radar plot (Figure 1) visually demonstrates the imbalance in domain-specific knowledge, with strong awareness of ethics and design, but weaker understanding of referencing.

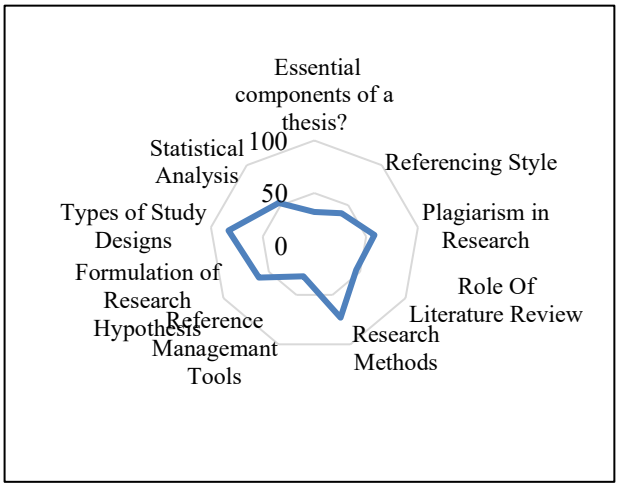

Figure 1: Radar plot depicting percentage of correct responses across knowledge domains in thesis writing.

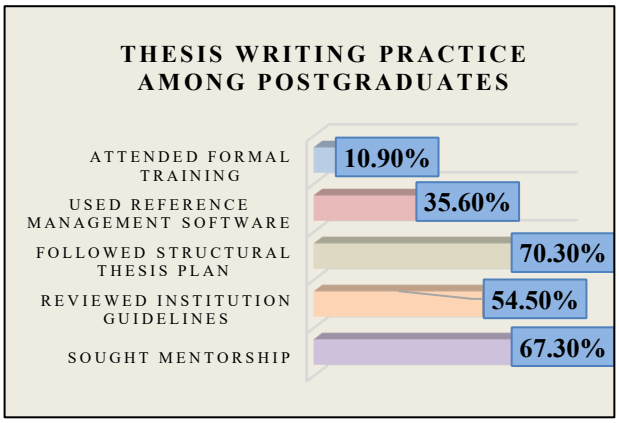

Figure 2: Thesis writing practice among postgraduates.

Attitude toward thesis writing among postgraduates

The mean attitude score was 20.4±1.77 (out of 25), indicating a generally positive outlook toward thesis writing. A significant proportion of students (91.1%) expressed willingness to seek guidance and 86.2% believed that thesis writing contributes to their academic and professional development. However, only 54.5% felt confident in their ability to complete a thesis independently. Detailed responses to individual attitude items are presented in Table 2.

Practice toward thesis writing among postgraduates

The mean practice score was 2.4±1.00 (out of 5), indicating limited practical engagement with thesis-writing activities. Although a majority of students reported efforts such as structured planning and seeking mentorship, participation in formal training programs and the use of reference management tools remained notably low, reflecting a gap between theoretical understanding and applied research skills (Figure 2).

The categorization of questionnaire responses into well-acknowledged areas and gap areas is summarized in Table 3. This highlights strengths in foundational knowledge and attitude, while identifying specific deficiencies in practical skills and tool usage that require targeted academic support.

Relationship between knowledge, attitude and practice in thesis writing

A moderate positive correlation was observed between knowledge and attitude, while the knowledge–practice link was weak but statistically significant. The attitude–practice relationship was weak and non-significant, indicating that positive attitudes or knowledge alone do not ensure effective thesis-writing practices without adequate training and mentorship (Table 4).

Table 1: Knowledge toward thesis writing among postgraduates.

S. No.	Questions to assess toward thesis writing among postgraduates	Correct response	Correct responses N=101 n (%)
Q1	What are the essential components of a thesis?	Introduction, Methods, Results, Discussion, Conclusion	81 (80.2)
Q2	Which referencing styles are commonly used in academic writing?	Vancouver, APA, Harvard, Chicago	40 (39.6)
Q3	What is plagiarism in research?	Use of others' work without proper attribution	58 (57.4)
Q4	What is the role of a literature review in a thesis?	Provides background and identifies research gaps	46 (45.5)
Q5	What are primary and secondary research methods?	Primary: Original data; Secondary: Existing data	73 (72.3)
Q6	What is the importance of research ethics in thesis writing?	Ensures integrity, confidentiality and validity	91 (90.1)
Q7	What tools can be used for reference management?	EndNote, Mendeley, Zotero	31 (30.7)
Q8	How do you formulate a research hypothesis?	Based on existing literature and research gaps	61 (60.4)
Q9	What are the common types of study designs in research?	Experimental, Observational, Case-Control, Cohort	83 (82.2)
Q10	What is the significance of statistical analysis in a thesis?	Helps in validating research findings	53 (57.4)

*Correct responses > 80% considered as well -acknowledged concepts about writing a good thesis.

Table 2: Attitude toward thesis writing among postgraduate.

S. No.	Statement	Respondents (N=101) n (%)
1	**I believe that thesis writing is an essential part of postgraduate education**	
	Strongly agree	54 (53.5)
	Agree	28 (27.7)
	Neutral	16 (15.80)
	Disagree	1 (1)
	Strongly disagree	2 (2)
2	**I feel confident in my ability to write a thesis**	
	Strongly agree	24 (23.8%)

Continued.

S. No.	Statement	Respondents (N=101) n (%)
	Agree	31 (30.7)
	Neutral	36 (35.6)
	Disagree	6 (5.9)
	Strongly disagree	4 (4)
3	**I think thesis writing helps in academic and professional growth**	
	Strongly agree	45 (44.6)
	Agree	42 (41.6)
	Neutral	10 (9.9)
	Disagree	2 (2)
	Strongly disagree	2 (2)
4	**I am willing to seek guidance and training for thesis writing**	
	Strongly agree	59 (58.4)
	Agree	33 (32.7)
	Neutral	5 (5)
	Disagree	3 (3)
	Strongly disagree	1 (1)
5	**I find research writing interesting and engaging**	
	Strongly agree	39 (38.6)
	Agree	35 (34.7)
	Neutral	23 (22.8)
	Disagree	3 (3)
	Strongly disagree	1 (1)

Table 3: Categorization of questionnaire items based on response thresholds.

Domain	Item	Response rate (%)	Category
Knowledge	Thesis components	80.2	Well-acknowledged
Knowledge	Study design types	82.2	Well-acknowledged
Knowledge	Research ethics	90.1	Well-acknowledged
Attitude	Willingness to seek guidance	91.1	Well-acknowledged
Attitude	Belief in academic/professional growth	86.2	Well-acknowledged
Knowledge	Awareness of referencing styles	39.6	Gap area
Knowledge	Awareness of reference management tools	30.7	Gap area
Practice	Attended formal training	10.9	Gap area
Practice	Used reference management software	35.6	Gap area
Practice	Reviewed institutional guidelines	54.5	Gap area

Table 4: Relationship between knowledge, attitude and practice in thesis writing.

Pair compared	Spearman's ρ	P value	Strength and direction
Knowledge↔Attitude	0.42	<0.001*	Moderate, positive
Knowledge↔Practice	0.26	0.008*	Weak, positive
Attitude↔Practice	0.15	0.13	Weak, positive

*p value<0.05 was considered statistically significant.

DISCUSSION

This study offers valuable insights into the readiness of postgraduate medical students to undertake thesis writing. A key paradox emerged: although students demonstrated moderate to high levels of knowledge and positive attitudes toward research, their actual engagement in thesis-writing practices remained limited and inconsistent. Postgraduate medical education in India has undergone a paradigm shift, increasingly integrating research into its core framework. Traditionally centred on clinical service and academic learning, medical training now recognises research as a foundational pillar. As Ahmad et al, asserts, research is more than a formal requirement; it is the intellectual bedrock of a teaching institution, cultivating clinicians who are scientifically competent and ethically grounded.[3] Fostering a strong research culture among postgraduates is critical to bridging the gap between clinical expertise and scientific inquiry. Central to this is the process of thesis writing, which necessitates scientific rigour, critical thinking and systematic planning. However, for many medical postgraduates, this represents

their first structured exposure to academic research. Despite possessing a solid clinical background, students often lack adequate training in research design, academic writing standards and scholarly communication. Early exposure to the essential elements of thesis writing such as identifying research questions, selecting appropriate study designs, conducting literature reviews and adhering to good clinical practice (GCP) and good laboratory practice (GLP) can significantly enhance research quality. Several authors offer structured guidance on this front. Hardy et al and Ramjeet et al stress the value of reflective and strategic thesis construction, while Fonnes and Rosenberg et al offer step-by-step approaches to presenting doctoral research in an accessible format.[4,5] Cuschieri et al further emphasise the need for clarity, precision and logical flow in scientific writing, positioning the thesis as both a culmination of academic effort and a marker of scholarly maturity.[6] Despite such frameworks, practical barriers persist. As Yousefi et al note, postgraduate research is often hindered by time constraints, limited access to resources and inadequate supervisory support.[7]

Critical components such as research originality, appropriate methodology, robust data analysis and coherent manuscript preparation are essential for successful thesis work and subsequent publication. Vaney et al identified these as key predictors of long-term academic success.[8] However, in many low- and middle-income countries, postgraduate students receive insufficient training in these domains, resulting in weak study design, limited data interpretation skills and delayed academic progress. Against this backdrop, the present study aimed to assess baseline KAP related to thesis writing among first-year postgraduate students. The goal was to explore their familiarity with research requirements and ethical norms, evaluate their perceptions of the process and identify areas requiring targeted intervention to enhance institutional research capacity.

The study findings underscore the pivotal role young medical professionals play in advancing healthcare scholarship and policy. Yet, their academic contributions often remain underutilised. For instance, a study evaluating 4,230 medical theses found that only 0.5% had been cited in policy decisions.[9] This points to the need for more practice-oriented, translational research efforts within postgraduate curricula.

The NMC's guidelines mandate that every postgraduate student submit a dissertation, present at least one oral and poster presentation and contribute to a publication prior to final examination eligibility. All research proposals must be reviewed and approved by an Institutional Ethics Committee (IEC), as per national ethical standards.[10-12] Hence, it becomes imperative for institutions and faculty to ensure students are not only compliant but also well-equipped for this academic journey. A major challenge in research preparedness lies in students' conceptual clarity and confidence regarding research methodology. Pillai et al observed variability in how students perceived the purpose and relevance of research, especially in the early stages of their training.[13] In recognition of these gaps, foundational research methodology courses have been made mandatory, with online certification platforms now offering accessible learning. Yet, key issues such as poor study design, inadequate sample size and insufficient statistical analysis continue to contribute to manuscript rejections.[14] Daniel et al further found that students often chose research methods based on convenience, prior exposure or supervisor preference rather than methodological fit.[15] Additionally, many struggled with key research tasks like formulating research questions, reviewing literature and analysing data skills that are vital for conducting rigorous, impactful studies.

The findings of the current study reflect these widespread challenges. Although knowledge regarding study design (82.2%) and research ethics (90.1%) was high, critical deficiencies were observed in referencing and citation practices. Only 39.6% of participants were aware of commonly used referencing styles and a mere 30.7% knew of reference management tools like Zotero or Mendeley. Such gaps can lead to inaccurate citations and increase the risk of inadvertent plagiarism. Despite 91.1% of respondents expressing a willingness to seek help and 86.2% recognising the academic value of thesis writing, only 10.9% had received formal training. This mismatch suggests a considerable institutional gap in mentorship and capacity-building programs. Furthermore, only 35.6% had used any form of reference management software and just 54.5% had reviewed institutional thesis-writing guidelines indicating limited engagement with available academic resources.

The discrepancy between knowledge and practical application highlights the broader issue of poor knowledge–practice translation, a common concern in medical education. Correlation analysis in this study supports this observation. While knowledge and attitude scores showed a moderate positive correlation ($\rho=0.42$), the associations between knowledge and practice ($\rho=0.26$) and attitude and practice ($\rho=0.15$) were weaker and in the latter case, not statistically significant. These findings reinforce the importance of bridging theory with application through structured workshops, early mentorship and guided peer-support systems.

An analysis of response patterns further illustrates that while students demonstrate sound theoretical understanding and positive attitudes, their actual implementation of research skills remains inadequate. For example, while 80.2% could identify the basic components of a thesis and 86.2% appreciated its relevance, only a third had experience using digital referencing tools. Reviewing institutional guidelines, a basic yet essential preparatory step, was done by just over half of the students. Amid the growing intersection of medicine, law and technology, medical research is increasingly bound by ethical and legal requirements. The Central Drugs Standard Control Organization (CDSCO), operating under the Ministry of

Health and Family Welfare, regularly updates national guidelines on clinical trials and human research. Familiarity with these laws and ethical obligations is critical, especially when preparing protocols, obtaining informed consent and navigating institutional review processes.

Finally, the conversion of postgraduate theses into peer-reviewed publications remains suboptimal. Shukla et al reported a conversion rate of only 32.5%, with lack of originality and flawed design being the most cited reasons for rejection.[16] Encouraging full-length publications not only strengthens academic portfolios but also enhances the dissemination of meaningful findings into clinical and policy spheres.

CONCLUSION

This study highlights a disparity between KAP of thesis writing among postgraduate medical students. While knowledge and attitudes were moderately high, practical implementation such as the use of reference management tools and participation in formal training was notably limited. The moderate correlation between knowledge and attitude, coupled with the weak link between knowledge and practice, emphasises that theoretical awareness alone is insufficient to ensure quality thesis writing.

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