Original Article

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Knowledge, Attitude and Practice towards Medical Research among Interns and Postgraduate Students of a Government Medical College: A Cross-sectional Study

Physiology Section

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ABSTRACT

Introduction: Biomedical research is a tool which can improve healthcare. The latest information on skills of scientific principles and methods is essential for the conduct of research. Medical students should be aware of the research as they will be future doctors who will have to practice evidence-based medicine in patient care.

Aim: To assess the Knowledge, Attitude and Practice (KAP) towards medical research of the Interns and Postgraduate (PG's) students.

Materials and Methods: A cross-sectional study was conducted at Gadag Institute of Medical Sciences, Gadag, Karnataka, India from July 2024 to September 2024. Data was collected using a self-designed, semistructured questionnaire (Cronbach's alpha value 0.749) from 173 PGs and interns who gave consent to the study. Less than or equal to 50% correct answers were considered a poor knowledge score and more than 50% correct answers were considered a good knowledge score. Assessment of attitudes was done by using a 5-point Likert scale. Assessment of practice towards medical research was assessed using six questions. Statistical analysis was done using Epi Info software. The Chi-square test and Fisher's exact test were applied for statistical evaluation. The p-value <0.05 was considered statistically significant.

Results: The mean knowledge score was 7.8±2.9, out of 16 with a range of 2-14. The majority of students, about 102 (59%) had poor knowledge scores and 71 (41%) had good knowledge scores. About 104 (60.1%) students perceived that research increases their burden and 117 (67.6%) PG's felt that separate time should be allotted for PG research in the curriculum these were students' attitudes towards research. Only 66 (38.2%) students had done research work which shows poor practice towards research. Students with good knowledge were more involved in medical research than students with poor knowledge and the difference was statistically significant (p-value=0.017). In the present study, the reasons for not doing research were lack of time followed by lack of interest, etc.

Conclusion: There exists a significant deficiency in knowledge and a predominance of negative or neutral attitudes among study participants regarding medical research. Despite most PGs, had participated in training workshops on research methodology, their engagement in research activities was insufficient. A robust understanding of research is correlated with increased research practice. Therefore, PG students must receive continuous training and encouragement to engage in research endeavours. Furthermore, the integration of workshops on research methodology into the curriculum for undergraduate and intern programs is essential for fostering a stronger research culture.

Keywords: Biomedical research, Curriculum, Evidence-based medicine

INTRODUCTION

The main aim of the research is to encourage new ideas and bring sustainable socio-economic development [1]. Good Health is the most important of all requirements of one's life and plays a major role in development of a country. Biomedical research is the tool, which can improve healthcare. The latest information on skills of scientific principles and methods is essential for the conduct of research. Medical students need to familiarise themselves with research methodologies, as they will be future physicians required to implement evidence-based medicine in their clinical practice for optimal patient care [2]. However, it is observed that research programs in medical colleges get the least priority because of various reasons like lack of funding, manpower, resources etc., [3,4]. Indian Council of Medical Research (ICMR) though not mandatorily, encourages medical undergraduate students to undertake research projects like Short-Term Studentship (STS), so that they get actively involved and take interest in research at the undergraduate level. As per the National Medical Commission (NMC) rules, biomedical research training workshops and research activity are mandatory in PG courses. PG students are mandated to complete a dissertation project as part of their course requirements [5]. However, during their residency training, they encounter significant demands related to patient workload and various academic responsibilities, such as seminars, journal clubs and acquiring practical skills. As a result, approximately 75% of residents choose to participate in other scholarly activities rather than focus on research. Consequently, undertaking a dissertation or research project often becomes a lower priority for these students [1,6]. Therefore, to conduct the research effectively medical students require adequate knowledge and a positive attitude. Further investigation is necessary to identify the reasons behind the gap in knowledge and attitudes concerning medical research among students. Understanding these factors will facilitate the development of a comprehensive curriculum for both undergraduate and PG programs. Moreover, knowledge and practices regarding medical research can differ considerably across various regions. Notably, a study focusing on the Gadag, Karnataka area has yet to be conducted, which could assist in establishing competencies within undergraduate and PG curricula. Therefore, the present study aimed to evaluate KAP related to medical research among interns and PG students.

MATERIALS AND METHODS

A cross-sectional study was conducted at the Gadag Institute of Medical Sciences in Gadag, Karnataka, India, from July 2024 to September 2024. Ethical approval was granted by the Institutional Ethical Committee (IEC) with the ethical clearance number L.No. GIMS/IEC/152/2024. The study included interns and PG students ranging from their first to final year, following the acquisition of written informed consent via a Google sheet.

Inclusion criteria: All interns and PG students who were present during three consecutive visits were included in the study.

Exclusion criteria: Students who declined to participate were excluded from the study.

Sample size determination: Based on the findings of a previous study by Pawar DB et al., which reported an awareness level of medical research at 58% among resident doctors, the sample size was calculated using an allowable error of 10% [6]. Applying the formula (n={4pq}/{L2}), where \(p=58\%\), \(q=42\%\), and \(L=10\), the desired sample size was determined to be 98. Considering a 10% non response rate, the final sample size was 108. From a total of 244 students, comprising 110 PG students and 134 interns, 173 individuals provided consent and participated in the study.

Data collection tool/procedure: A self-designed semistructured questionnaire was employed to evaluate the KAP regarding medical research among study participants, utilising Google Sheets. The questionnaire was formulated by professors and assistant professors, concerning various prior studies [4,6-10], and its reliability was assessed, yielding a Cronbach's alpha value of 0.749.

The first section of the questionnaire collected socio-demographic information, including age, gender, course (Intern/PG), year of study, and speciality department for PG students. The second section comprised 16 questions focused on knowledge related to medical research, where each correct answer was awarded one point and incorrect answers received zero points. A score of 9 or higher was regarded as indicative of good knowledge (more than 50% correct answers), while a score of 8 or lower indicated poor knowledge (50% or fewer correct answers).

The third section included 12 questions assessing attitudes toward medical research, measured using a 5-point Likert scale (1=Strongly agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Strongly disagree). The fourth section featured six questions regarding practices related to medical research; the first five questions required yes/no responses, while the sixth provided multiple options for participants who had not undertaken research.

STATISTICAL ANALYSIS

Data were compiled in a Microsoft Excel sheet and analysed using Epi Info software. Results were presented as frequencies and percentages. The Chi-square test and Fisher's exact test were utilised to examine the significance of associations between variables, KAP regarding medical research. A p-value of <0.05 was considered statistically significant.

RESULTS

Out of a total of 244 interns and PGs, 173 responded to the study with87 (50.3%) interns and 86 (49.7%) PGs, almost equally distributed. Among PG's majority i.e., 34 (39.08%) belonged to the third year and most of them, 63 (73.26%) were from clinical departments. Among clinical departments, the majority, 39 (45.34%) belonged to surgical branches [Table/Fig-1].

Variables	n (%)
Gender	
Male	99 (57.2)
Female	74 (42.8)
Age (years)	
22-25	87 (50.4)
26-30	79 (45.6)
>30	7 (4)
Course	
Internship	87 (50.3)
Postgraduate (PG)	86 (49.7)
Postgraduate (PG) year of course	
First year	26 (30.23)
Second year	26 (30.23)
Third year	34 (39.54)
Departments of Postgraduates (PG)	
Preclinical	06 (6.98)
Paraclinical	17 (19.77)
Medical	24 (27.91)
Surgical	39 (45.34)

[Table/Fig-1]: Distribution of study participants according to socio demographic variables.

Total knowledge score of medical research was 1350/2768 (48.78%) in all students together. The mean knowledge score was 7.8±2.9, out of 16 with a range of 2-14. The majority of students, 102 (59%) had poor knowledge scores (≤8) and 71 (41%) had good knowledge scores (9-16). The majority of the study participants knew the p-value, PUBMED, the necessity of ethical clearance for observational studies, consent for non interventional studies, components of research study and from whom to seek approval for conducting research using new drugs in India.

Knowledge about the type of study design, type of data, reliability, representativeness, MEDLINE, the concept of scientific hypothesis, the process of writing a scientific paper, and how to check the number of citations received by their research paper was poor [Table/Fig-2].

A 100 (57.8%) of the study participants felt medical research should be made compulsory in the medical curriculum 104 (60.1%) students perceived that research increases the burden

Questions (Correct options in bold)	Correct responses frequency (n=173) (%)		
	Interns	PG'S	Total
Q1. What type of study is case control study? a. Descriptive **c. Analytical** b. Experimental d. Both a and c	20 (11.6)	36 (20.8)	56 (32.4)
Q2. p-value less than _is usually considered as significant a. 5.0 c. 0.5 b. 1.0 **d. 0.05**	52 (30.1)	66 (38.1)	118 (68.2)
Q3. Have you heard about PUBMED? If yes, what is it a. Medical journal c. Statistical software b. Online specialist helpline **d. Medical journal database**	37 (21.4)	75 (43.3)	112 (64.7)
4. In a study on hypertension patients are categorised based on their systolic blood pressure as normal, prehypertension, stage 1 hypertension and stage 2 hypertension. What type of data is this? a. Qualitative c. Nominal **b. Ordinal** d. Descriptive	19 (11.0)	53 (30.6)	72 (41.6)

5. What is reliability? **a. Reproducibility** c. Sensitivity b. Specificity d. None of the above	22 (12.7)	46 (26.6)	68 (39.3)
6. A scale of 1 to 5 is called? a. Ratio c. Ordinal b. Normal **d. Interval**	32 (18.5)	25 (14.4)	57 (32.9)
7. Do you need to get ethical clearance for observational study (e.g., Questionnaire method) **Yes**/No	65 (37.6)	73 (42.2)	138 (79.8)
8. Do you need consent of the patients for non interventional study? **Yes**/No	52 (30.1)	80 (46.2)	132 (76.3)
9. Representativeness is a key characteristic of a. Scientific paper c. Scientific research b. Professional paper **d. Study sample**	19 (11.0)	40 (23.1)	59 (34.1)
10. MEDLINE is a. The first and best known online medical journal b. International association of medical information c. Abbreviation (acronym) that lists the part of the research article. **d. Medical database**	19 (11.0)	47 (27.2)	66 (38.2)
11. Which of the following is not a component of research study? **a. Setting up the Institute Scientific Committee** b. Framing research question c. Development of study tool d. Calculating sample size	35 (20.2)	64 (37.0)	99 (57.2)
12. All listed rules apply to the process of writing an introduction section of scientific paper except: a. Clearly state why the research has been started. b. Do not explain textbook facts. c. Do not explain words from the title of the paper. **d. Make it longer rather than shorter.** e. Clearly define the question to which your research aims to provide an answer.	24 (13.9)	50 (28.9)	74 (42.8)
13. How would you define the scientific hypothesis? **a. A proposed idea or thought.** b. An answer or solution to a question c. An answer or solution to a question which has capacity of verification or empirical demonstration. d. Logical deduction of the premises that may or may not be verified empirically.	25 (14.5)	22 (12.7)	47 (27.2)
14. How would you define the scientific truth? **a. The truth that will be reacted through scientific research.** b. Absolute truth. c. Consensus of competent experts d. Fact that can be found in the textbook e. Facts that your professors teach.	48 (27.7)	50 (28.9)	98 (56.6)
15. In the previous year, you have published a paper in a prestigious journal. Now you want to check the number of citations your paper has received. The best way to do it would be to search in: a. Author index of the MEDLINE database b. Corporate index of the science citation index database. c. Author index of the current contents database. **d. Citation index of the science citation index database** e. Author index of the science citation index database.	12 (6.9)	42 (24.3)	54 (31.2)
16. From whom to seek approval for conducting clinical research using new drugs in India a. Food and Drug Administration (FDA) **b. Central Drug Standard Control Organisation (CDSCO)** c. Medicines and Healthcare products Regulatory Agency (MHRA) d. Therapeutic Goods Administration (TGA)	46 (26.6)	54 (31.2)	100 (57.8)

[Table/Fig-2]: Student's knowledge about scientific research.

on already overburdened interns and PGs. 117 (67.6%) students felt that separate time should be allotted for PG research in the curriculum. Most i.e., 125 (72.3%) students perceived that patient outcomes would improve with continued medical research [Table/Fig-3].

A total of 107 (61.8%) of the participants had not undergone research methodology training workshop and had not done any research and remaining 66 (38.2%) who had undergone research workshop and carried out research were all PGs [Table/Fig-4]. Among 107 (61.8%) of the participants who had not done any research, the most common reasons for not doing medical research were lack of time 34 (31.8%), lack of interest 19 (17.8%) followed by other reasons [Table/Fig-5].

Female participants' knowledge scores were better than male participants' but this association was not statistically significant (p-value=0.162). PGs had a statistically significant good knowledge

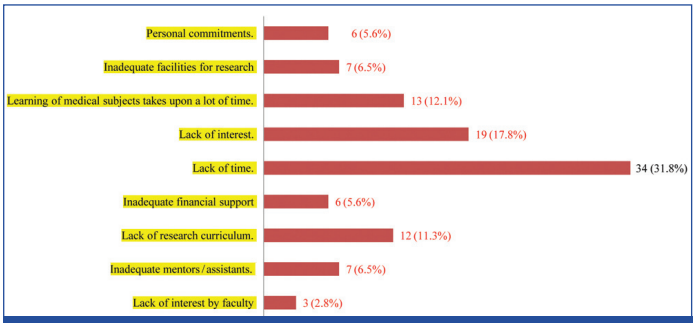
S. No.	Questions	Strongly agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly disagree N (%)
1.	Do you think medical research should be made compulsory in the medical curriculum?	39 (22.5)	61 (35.3)	60 (34.7)	7 (4.0)	6 (3.5)
2.	Do you think thesis or research publication is needed in postgraduation?	42 (24.3)	68 (39.3)	45 (26.0)	12 (6.9)	6 (3.5)
3.	Do you think undertaking research increases burden on already overworked interns and Postgraduate (PG) students?	42 (24.3)	62 (35.8)	52 (30.1)	13 (7.5)	4 (2.3)
4.	Do postgraduate students need guidance and supervision to conduct research?	65 (37.6)	67 (38.7)	34 (19.7)	2 (1.2)	5 (2.9)
5.	Do you think research time should be allotted separately while planning for PG curriculum?	58 (33.5)	59 (34.1)	51 (29.5)	3 (1.7)	2 (1.2)
6.	Do you think scientific approach limits physicians choice?	14 (8.1)	47 (27.2)	77 (44.5)	28 (16.2)	7 (4.0)
7.	Do you think scientific approach impose unnecessary rules?	17 (9.8)	27 (15.6)	88 (50.9)	33 (19.1)	8 (4.6)
8.	Do you think negative effects of science exceeds positive ones?	11 (6.4)	36 (20.8)	79 (45.7)	37 (21.4)	10 (5.8)

9.	Do you think patient outcome improve with continued medical research?	47 (27.2)	78 (45.1)	41 (23.7)	4 (2.3)	3 (1.7)
10.	Do you think physicians believing only in science are small minded?	8 (4.6)	22 (12.7)	73 (42.2)	57 (32.9)	13 (7.5)
11.	Do you think scientific approach lacks humanity?	11 (6.4)	24 (13.9)	78 (45.1)	49 (28.3)	11 (6.4)
12.	Do you think scientific methodology only makes the implementation of medical research more difficult?	16 (9.2)	31 (17.9)	84 (48.6)	32 (18.5)	10 (5.8)

[Table/Fig-3]: Questions on attitude towards medical research.

Q. No.	Medical research practice questions	Yes n (%)	No n (%)
1	Have you undergone research training?	66 (38.2)	107 (61.8)
2	Have you done any research?	66 (38.2)	107 (61.8)
3	Have you presented paper or poster before?	69 (39.9)	104 (60.1)
4	Will you carry out research in future?	136 (78.6)	37 (21.4)
5	Will you pay money to others so that they will do a study on your name?	29 (16.8)	144 (83.2)

[Table/Fig-4]: Distribution of medical research practice in participants, n=173.



[Table/Fig-5]: Question 6- Reasons for not doing research among those who had not done research in question 2 (n=107).

58 (67.44%) than the interns 13 (14.94%) with a p-value of 0.001. A statistically significant association was found between knowledge and involvement in medical research (p-value=0.017) [Table/Fig-6].

by their participants and another study in Saudi Arabia done by Thirunavukkarasu A et al., reported an 82.4% response rate [2,7].

In the current study, 99 (57.2%) study participants were males, 74 (42.8%) were females and the mean age was 25.9±2.9 years. In contrast to this, in a study by Shah A et al., in Maharashtra, the mean age was 27.4±2.2 years and similar to present study, the majority of the PGs were from clinical departments [1]. In the present study, both interns (87) and PG's (86) participated in almost equal numbers. Among PGs, most of the participants were from the third year of the PG course and from clinical departments. This could be due to the availability of patients as study participants leading to more orientation of clinical PGs towards research and as the course progresses, mandatory paper/poster presentation by the university makes them more oriented towards research projects.

The mean knowledge score in the present study was 7.8±2.9 out of 16. The majority had poor knowledge scores (≤8/16) and only 41% had good knowledge (≥9/16). Knowledge score was poor (2.2±1.2/8) in a study done by Vodopivec I et al., and low (2.44±1.96/10) in a study done in Saudi Arabia by Ibrahim NKR et al., [10,11]. The difference in findings could be because their studies included only medical UG students, who are less aware of medical research as it is not a part of their curriculum. In the present study, knowledge score of medical research was 48.8% (1350/2768) which was less compared to the study done in Kolar by Pallampathy S et al., and more compared to the study done by Thirunavukkarasu A et al.,

Variables		Knowledge score			
		Good	Poor	Total	p-value
Gender	Female	35 (47.30)	39 (52.70)	74 (100)	0.162
	Male	36 (36.36)	63 (63.64)	99 (100)	
Designation	Intern	13 (14.94)	74 (85.06)	87 (100)	0.001
	PG	58 (67.44)	28 (32.56)	86 (100)	
PG specialisation	Preclinical	05 (83.33)	1 (16.67)	06 (100)	0.001
	Paraclinical	12 (70.59)	05 (29.41)	17 (100)	
	Medical	14 (58.33)	10 (41.67)	24 (100)	
	Surgical	27 (69.23)	12 (30.77)	39 (100)	
PG year of course	First year	18 (69.23)	8 (30.77)	26 (100)	0.001
	Second year	20 (76.92)	6 (23.08)	26 (100)	
	Third year	20 (58.82)	14 (41.18)	34 (100)	
Have you undergone research methodology training?	No	48 (44.9)	59 (55.1)	107 (100)	0.207
	Yes	23 (34.8)	43 (65.2)	66 (100)	
Have you done any research	No	36 (33.6)	71 (66.4)	107 (100)	0.017
	Yes	35 (53.0)	31 (47.0)	66 (100)	
Have you presented oral/poster in conference	No	36 (34.6)	68 (65.4)	104 (100)	0.041
	Yes	35 (50.7)	34 (49.3)	69 (100)	
Carries out research in future	No	10 (27.0)	27 (73.0)	37 (100)	0.060
	Yes	61 (44.9)	75 (55.1)	136 (100)	

[Table/Fig-6]: Association of socio-demographic profile and practice of medical research with knowledge score.
*Chi-square test, **p-value <0.05 -statistically significant

DISCUSSION

Research is a key element for the advancement and gradation of any field including the healthcare system. In the present study out of a total of 244 interns and PGs together, 173 (71%) responded to the study in contrast to present study findings, a study done in Kolar by Pallampathy S et al., reported an 89% response rate [2,7]. In the present study, the concept of the scientific hypothesis was known to only 27.2% where whereas 18.9% and 58% knew the concept in studies done by Giri PA et al., and Pawar DB et al., respectively [4,6]. The high score observed in the Pawar DB et al., study was because the participants were only second and final-year PG students [6]. Knowledge about MEDLINE was 21% in the study

by Giri PA et al., but in the present study, 38.2% of the students knew about MEDLINE [4]. The difference in findings observed was mainly because of different study settings and the duration, though done among PGs 10 years back (2014) when awareness regarding medical research was comparatively less. In the present study, 22.5% strongly agreed and 35.3% agreed that medical research should be made compulsory in the curriculum but still, they wanted it to be included in the curriculum provided separate time is allotted to carry out research. Similar findings were found in other studies [2,12-14].

In the present study, only 9.8% of participants felt research would not increase the burden on them. In contrast, to present study results in a study by Pallampathy S et al., 56% of participants opined that research was not a waste of time and did not interfere with studies, whereas in a study done by Mandhare RN et al., only 19% felt it was a burden [2,14]. In the present study, 72.3% felt research improves better understanding of medicine and clinical practice. In contrast to these findings, this attitude was less in a study done by Shah et al., (65%) and more in a study by Giri PA et al., (91.4%) [1,4]. The difference in findings may be because of differences in the study population and study setting. In the present study, 57.8% of students believed that research should be made compulsory in the curriculum; however, 60% felt it would be a burden. This suggests that while students recognise the value of research in their education, they perceive it as an additional strain due to their already heavy course load. To address this, if dedicated time were allocated for research activities, it could significantly enhance students' learning experiences, making them both more engaging and beneficial. In the present study around one-third (38%) have undergone research training workshops and done research which was in contrast to the findings of a study done in Qatar by Al-Subai RR et al., on undergraduates where half of the study participants had published the research and this was attributed to participants passion for research, past experiences of research, mandatory medical research and supervisor help [8]. Similar to the present study, fewer (36.4%) participants had undergone formal training in a study done by Dhodi DK et al., [12]. This difference may be due to different study populations involved and variations in importance for research over a while.

In the present study, it was observed that more female students had good knowledge about medical research than male students but this gender difference in knowledge was non significant statistically. The present study found a statistically significant difference in knowledge about medical research between interns and PGs where the PGs had better knowledge than interns. This can be explained by the fact that research work is mandatory for PGs but not for UG's and interns as per the university curriculum. The present study also revealed a statistically significant difference in knowledge about medical research between clinical vs pre-para clinical departments with pre-para clinical PGs having better knowledge than clinical students and similar findings were found in Dhodi DK et al., [12].

This study found that second-year PG students had better knowledge scores than first-year and final-year PGs, with a statistically significant difference. This could be due to first-year students lacking biomedical training and final-year students being more focused on exams. Additionally, those who engaged in research or presentations scored better. Key reasons for not pursuing research included lack of time, interest, a research curriculum, faculty support, funding, facilities and mentors. Similar to this study, Dhodi DK et al., and Alduraibi KM et al., also identified lack of time and lack of interest as major reasons for not engaging in research [12,13]. This may be attributable to the participants in the study, who were PGs and interns burdened with clinical work, preparation for PG entrance exams, or a heavy medical curriculum. Inadequate facilities and academic workload as barriers to research were similarly noted in a study conducted in Qatar [8]. Additionally, studies conducted by Mandhare RN et al., and Chakraborti C et al., reported a lack of awareness and mentors, as well as the absence of a dedicated research office and faculty support, facilities and lack of funding as barriers for not doing research [14,15].

Limitation(s)

As this was a cross-sectional survey, the study did not allow causative conclusions and further limited the extrapolation of results to the entire population of medical students in the country. In addition, Likert responses are prone to central tendency bias (respondents try to avoid extreme statements) and acquiescence bias (tend to agree with the presented statements).

CONCLUSION(S)

There exists a significant deficiency in knowledge and a predominance of negative or neutral attitudes among study participants regarding medical research. Despite most PGs, had participated in training workshops on research methodology, their engagement in research activities was insufficient. A robust understanding of research is correlated with increased research practice. Therefore, PG students must receive continuous training and encouragement to engage in research endeavours. Furthermore, the integration of workshops on research methodology into the curriculum for undergraduate and intern programs is essential for fostering a stronger research culture.

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Authors' contribution: SB, VSG- Conceptualisation, Data collection, Formal analysis, Writing - Original draft, review and editing; MB, SA- Conceptualisation, Formal analysis, Writing - review and editing.

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REFERENCES

[1] Shah A, Patankar R, Tripathi R, Jalgaonkar S, Sangtani N, Gajbhiye S. Attitude and perception of post-graduate residents toward thesis: A cross-sectional study. Natl J Physiol Pharm Pharmacol. 2022;6(12):868-74.
[2] Pallamparthy S, Basavareddy A. Knowledge, attitude, practice, and barriers toward research among medical students: A cross-sectional questionnaire-based survey. Perspect Clin Res. 2019;10(2):73-78.
[3] Rehman MZ, Yahya A, Shehryar M, Imran J. Barriers to perform research studies from the perspective of medical students of Khyber Medical College, Peshawar. Research Square. 2024;01-16.
[4] Giri PA, Bangal VB, Phalke DB. Knowledge, attitude and practices towards medical research amongst the postgraduate students of Pravara Institute of Medical Sciences University of Central India. J Family Med Prim Care. 2014;3(1):22-24.
[5] Postgraduate Medical Education Regulations-2023. [Internet]. [cited 2024 Jun 26]. Available from: https://www.nmc.org/RulesandRegulations/PGMedicalEducation Regulations2023.aspx.
[6] Pawar DB, Gawde SR, Marathe PA. Awareness about medical research among resident doctors in a tertiary care hospital: A cross sectional survey. Perspect Clin Res. 2012;3(2):57-61.
[7] Thirunavukkarasu A, Alkuwaykibi SB, Salahuddin M, Albalawi AF, Alruwaili ASD, Alruwaili ZMN, et al. Knowledge, attitude, and barriers towards health research among students from health science colleges: A northern Saudi cross-sectional study. Arch Pharma Pract. 2020;11(3):161-68.
[8] Al-Subai RR, Kaleem MZ, Hassanien D, Eldestawy M, Hamwi MN, Elsayed E, et al. Perceptions and experiences of pursuing research among medical students in problem-based learning curriculum: A cross-sectional study from Qatar. J Med Educ Curric Dev. 2024;11:01-13.
[9] El Achi D, Al Hakim L, Makki M, Mokaddem M, Khalil PA, Kaafarani BR, et al. Perception, attitude, practice and barriers towards medical research among undergraduate students. BMC Med Educ. 2020;20(1):195.
[10] Vodopivec I, Vujaklija A, Hrabak M, Lukic IK, Marusic M. Knowledge about and attitude towards science of first year medical students. Croat Med J. 2002;43(1):58-62.
[11] Ibrahim NKR, Fetyani DM, Bashwari J. Assessment of the research-oriented knowledge, attitude and practice of medical students and interns of the King Abdulaziz University, Jeddah and the adoption of a research-intervention educational program. Rawal Med J. 2013;38(4):432-39.

[12] Dhodi DK, Thakkar KB, Billa G, Khobragade AA, Sinha SR, Patel SB. Knowledge, attitude & practices of medical students and teachers towards clinical research in a tertiary care hospital in Mumbai- Cross sectional survey. J Contemp Med Edu. 2013;1(4):238-44.
[13] Alduraibi KM, Aldosari M, Alharbi AD, Alkhudairy AI, Almutairi MN, Alanazi NS, et al. Challenges and barriers to medical research among medical students in Saudi Arabia. Cureus. 2024;16(5):e59505. Doi: 10.7759/cureus.59505.
[14] Mandhare RN, Khadke VV, Saleem B. Tamboli SB. Knowledge, attitude and practices towards medical research among resident doctors at a tertiary care hospital. Int J Basic Clin Pharmacol. 2019;8(11):2517-22.
[15] Chakraborti C, Bourgeois DJ, Gleeson E, Gunderson W. Identifying barriers to successful research during medical school. Medical Education Development. 2012;2:e2.

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