Section: Community Medicine

Original Research Article

A CROSS-SECTIONAL STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICES OF UNDERGRADUATE MEDICAL STUDENTS TOWARD MEDICAL RESEARCH AT ZYDUS MEDICAL COLLEGE & HOSPITAL OF ASPIRATIONAL DISTRICT DAHOD

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ABSTRACT

Background: Medical research is a cornerstone of evidence-based clinical practice and the advancement of healthcare delivery systems. Despite this, undergraduate engagement in research activities is suboptimal in India. The objective is to evaluate the knowledge, attitude, and practices (KAP) of undergraduate medical students including interns toward medical research at Zydus Medical College and Hospital of Dahod.

Materials and Methods: A cross-sectional study was conducted among 301 undergraduate medical students using a pre-designed, semi-structured questionnaire circulated via online platforms during Aug-Sept-2024. Data analysis was performed using Microsoft Excel and SPSS.

Results: The mean age was 21.1 ± 1.7 years and 56.8% were males out of 301 participants. Mean knowledge score increased significantly with academic year ($p = 0.0053$). About 78.4% of students believed research should be integrated into the MBBS curriculum. Although 67.11% had not participated in any research project, 25.91% had participated in data collection.

Conclusion: Undergraduate students exhibit a positive attitude toward research, but lack adequate knowledge and practice. Inclusion of structured research training in the medical curriculum is strongly recommended.

Keywords: Knowledge, Attitude, Practices, Undergraduate Medical Student, Medical Research.

INTRODUCTION

The potential of biomedical research to enhance medical treatment has raised concerns about scientific research in both wealthy and poor nations.[1,2] Conducting research requires a current understanding of scientific ideas and procedures. Since they will be practicing evidence-based medicine in patient care as future physicians, medical students should be informed of the procedures used in doing research. The methodical process of proving or disproving theories and hypotheses is known as scientific inquiry.[1,3]

Prevention, diagnosis, and more recent medical treatments are all impacted by medical research. It has resulted in changes to health care program policies.[4] Early exposure to health training research is advised by contemporary undergraduate education. The literature claims that knowledge, attitude, experience, and research impediments are the main components of research.[5-8]

Undergraduate participation in research was lower in the medical college due to a large course load, limited exposure to research technique, and time constraints. These students' postgraduate writing skills are inadequate when it comes to protocols and proposals. By offering funding, certain regulatory organizations support research by undergraduates and postgraduates.For them to conduct further research, they must have sufficient expertise and a good outlook on the field. The purpose of this study

was to evaluate medical undergraduates' research knowledge, attitudes, and experiences.[1]

MATERIALS AND METHODS

Study Design: A Descriptive Cross-sectional study
Study Setting: Zydus Medical College and Hospital, Dahod, Gujarat
Study Period: August to September 2024.
Population: All MBBS undergraduates and interns (N ≈ 1000)
Sample Size: The sample size was calculated using the Raosoft online sample calculator with a 95% confidence interval, 5% margin of error, and a total study population of 1000 students. This resulted in a sample size of 278 students; hence we enrolled 301 as a final sample size.[9,13,17]
Sampling Technique: Convenience Sampling Method
Data Collection Method and Tool: The Cross-sectional pre-designed, semi-structured questionnaire-based survey was circulated as a Google form via online mode (WhatsApp) among UG medical studentsincluding interns from ZMCH, Dahod, during study period (Aug-sept-2024).The study protocol was submitted to the Institutional Ethics Committee. After obtaining approval, the study was carried out from Aug-sept-2024.
The questionnaire consisted of 12 questions of close-ended types.First part of the questionnaire was regarding demographic details such as age, gender, and year of the study. The second part consisted 5 questions (close ended) on knowledge of research.It was assessed by scoring 1 to the correct response or answered 'yes' and 0 for incorrect response or answered 'no' to knowledge questions. The maximum score was 5 and minimum being 0.
Third section of questionnaire was intended to collect information on the attitude of the participants in research. The answers were evaluated by 5-point Likert rating scale ranging from strongly disagree (score 1) to strongly agree (score 5).There were four attitude statements in the questionnaire so that the maximum score was 20 and the minimum score was 4.The fourth part consisted 3 questions on practices of medical students toward research. The maximum score was 7 and minimum was0. The total score was calculated in the end by Evaluating the answers.
Statistical Analysis: Data was entered in Microsoft Excel spread sheet and were presented using frequencies, mean, and standard deviation as appropriate. Categorical data were represented as frequencies.The student's knowledge score based on gender was analyzed using Fisher's exact test. The Mean score of Knowledge, Attitude and practices compared by Gender using t-test and by academic year using ANOVA test.P ≤ 0.05 was considered statistically significant.
Ethical Approval: The Ethical clearance for the study was obtained from the Institutional Ethics Committee prior to the study.

RESULTS

The mean age of participants was 21.1 ± 1.7 years, with 56.81% males and 43.19% females. Participants were fairly distributed across all academic years. The Socio-demographic details of participants are represented in [Table 1].

Table 1: socio-demographics details of the participants (n=301

Sr. No.	Variable	Categories	Frequency n (%)
1	Age (in years)	Mean± SD	21.1± 1.7
2	Sex	Female Male	130 (43.19%) 171 (56.81%)
3	Academic Year	First MBBS Second MBBS Third MBBS Part I Third MBBS Part II Intern	31 (10.30%) 88 (29.24%) 74 (24.58%) 53 (17.61%) 55 (18.27%)

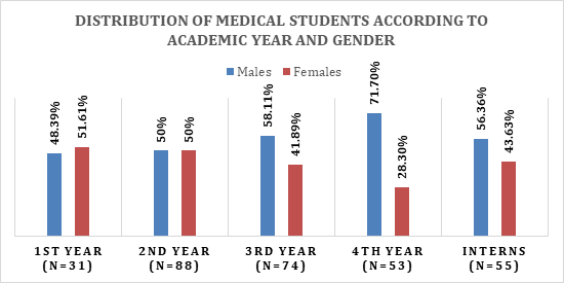

Figure 1: distribution of medical students according to academic year andgender(n=301)

The total knowledge score regarding the medical researchwas 349/1505 (23.19 %). The Knowledge scores increased progressively with academic advancement, with interns scoring the highest.The comparison of knowledge score based on gender is represented in [Table 2].Percentage of participants responses on attitudes scale are shown in [Table 3].Distribution of participants shown in [Figure 1].
Percentage of medical students in relation to practices toward research is show in [Figure 2-3].

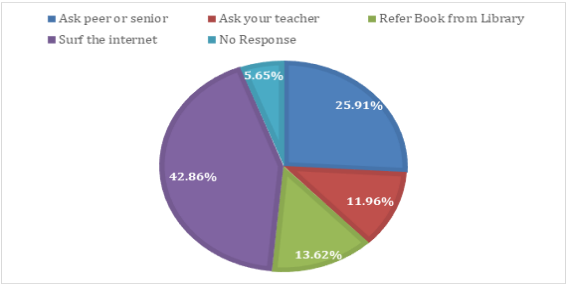

Figure 2: percentage of participants on options for finding new information on medical topics (n=301)

Table 2: comparison of knowledge total score of participants by gender (n=301)

Education Year	Gender (n)	Correct Response n (%)	Incorrect Response n (%)	Knowledge (%)	P Value
First	Male (15)	16 (21.33%)	59 (78.67%)	18.06%	0.4038
	Female (16)	12 (15%)	68 (75%)		
Second	Male (44)	39 (17.73%)	181 (82.27%)	19.32%	0.4689
	Female (44)	46 (20.91%)	174 (79.09%)		
Third	Male (43)	51 (23.72%)	164 (76.28%)	22.16%	0.4472
	Female (31)	31 (20%)	124 (80%)		
Final	Male (38)	51 (26.84%)	139 (73.46%)	24.53%	0.2049
	Female (15)	14 (18.67%)	61 (81.33%)		
Intern	Male (31)	47 (30.32%)	108 (69.68%)	32.36%	0.4372
	Female (24)	42 (35%)	78 (65%)		

Table 3: percentage of medical students answered on attitudes questions(n=301)

Statement	Strongly Disagree n (%)	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)	Strongly Agree n (%)
Research should be part of MBBS	8 (2.66%)	5 (1.66%)	52 (17.28%)	167 (55.48%)	69 (22.92%)
Students should participate more in medical research	10 (3.32%)	6 (1.99%)	47 (15.61%)	181 (60.13%)	57 (18.94%)
Research has positive influence on treatment outcomes	6 (1.99%)	5 (1.66%)	33 (10.96%)	178 (59.14%)	79 (26.25%)
Research has positive impact to understanding to disease prevalence	9 (2.99%)	4 (1.33%)	25 (8.31%)	180 (59.80%)	83 (27.57%)

The Comparison of knowledge, attitudes and practices of medical students inrelation to research by gender and academic year is depicted in [Table 4].

Table 4: comparison of KAP scores of participants by gender and academic year

		Knowledge		Attitude		Practices	
		Mean± SD	p-value	Mean± SD	p-value	Mean± SD	p-value
t-Test							
Gender							
	Male	1.19±1.11	0.594	3.02±1.85	0.2523	3.33±1.53	0.8685
	Female	1.12±1.15		3.25±1.54		3.30±1.59	
ANOVA Test							
Academic Year							
	First	0.91±0.87	0.0053*	2.55±2.29	0.2938	3.26±1.52	0.9652
	Second	0.97±0.95		3.15±1.75		3.28±1.66	
	Third part I	1.10±1.14		3.24±1.65		3.44±1.59	
	Third part II	1.23±1.21		3.02±1.62		3.31±1.45	
	Intern	1.63±1.28		3.35±1.46		3.28±1.48	

*Statistical significance of Knowledge score among academic year ($p<0.05$).

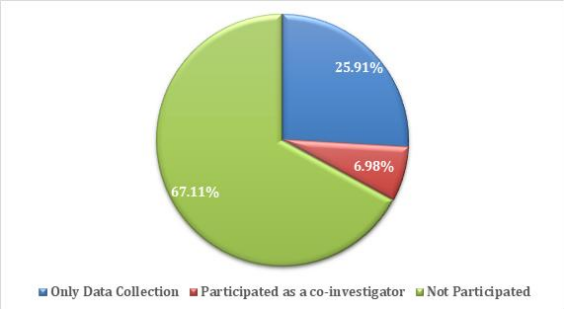

Figure 3: percentage of medical students who participated in research project (n=301)

DISCUSSION

The study highlights a discernible gap in knowledge and practice related to research among undergraduate medical students, with gradual improvement noted in knowledge across academic years. Total knowledge score was increased with academic year of medical students. This finding similarly to study conducted on undergraduates in Saudi Arabia and America.[2,5,13] In contrast, Total knowledge score was better in 2nd-year students (78.8%), followed by final year (70.6%), 3rd year (67.6%), and 1st year (63%).[1] Few studies conducted on post-graduates and Undergraduates in Iran, Arabian Countries, Australia, and Pakistan depicted that theknowledge of the participants did not improve increasingly with their academic advancement.[3,10-12]

In this study total 78.4 % participants agreed or strongly agreed to research should be part of MBBS curriculum.In other studies, (79.7%) percentage in Jordan; (67.03%)in Kolar, India;(61.5%) in Nagpur, India and Kurdistan Region of Iran showed agreement with this statement.[1,13,17,19]The attitude

score of the students based on academic year;no significant difference was found.This finding was contrast to the other studies who have also reported increased attitude score with academic year.[5,13,14,15] Total attitude score based on gender; no significant difference was found. This finding similarly to few studies.[1,5,16]

One-third (33%) of students demonstrated had prior experience in participating in a research project, which is comparable to the findings of a study conducted in Chennai, India and Kurdistan Region of Iraq.[17,18] In contrast, a Saudi Arabian survey shown that about two-thirds (70.4%) of its participants had engaged in a research project.[5]

The findings emphasize the need for structured inclusion of research components within the undergraduate curriculum, potentially through mandatory short-term projects, summer schools, or research methodology workshops.

CONCLUSION

Undergraduate medical students exhibit positive attitudes toward research but lack sufficient knowledge and practical exposure. Integrating research training and hands-on experience within the medical curriculum could foster a more research-oriented approach in future clinicians.

REFERENCES

1. Pallamparthy S, Basavareddy A. Knowledge, attitude, practice, and barriers toward research among medical students: A cross-sectional questionnaire-based survey. Perspect Clin Res. 2019 Apr-Jun;10(2):73-78. doi: 10.4103/picr.PICR_1_18. PMID: 31008073; PMCID: PMC6463502.
2. Vujaklija A, Hren D, Sambunjak D, Vodopivec I, Ivanis A, Marusić A, Marusić M. Can teaching research methodology influence students' attitude toward science? Cohort study and nonrandomized trial in a single medical school. J Investig Med. 2010 Feb;58(2):282-6. doi: 10.2310/JIM.0b013e3181cb42d9. PMID: 20130460.
3. Memarpour M, Fard AP, Ghasemi R. Evaluation of attitude to, knowledge of and barriers toward research among medical science students. Asia Pac Fam Med. 2015 Feb 11;14(1):1. doi: 10.1186/s12930-015-0019-2. PMID: 25705121; PMCID: PMC4336721.
4. Lavis JN, Oxman AD, Moynihan R, Paulsen EJ. Evidence-informed health policy 1 - synthesis of findings from a multi-method study of organizations that support the use of research evidence. Implement Sci. 2008 Dec 17;3:53. doi: 10.1186/1748-5908-3-53. PMID: 19091107; PMCID: PMC2621242.
5. Noorelahi MM, Soubhanneyaz AA, Kasim KA. Perceptions, barriers, and practices of medical research among students at Taibah College of Medicine, Madinah, Saudi Arabia. Adv Med EducPract. 2015 Jul 6;6:479-85. doi: 10.2147/AMEP.S83978. PMID: 26185479; PMCID: PMC4500619.
6. Burgoyne LN, O'Flynn S, Boylan GB. Undergraduate medical research: the student perspective. Med Educ Online. 2010 Sep 10;15. doi: 10.3402/meo.v15i0.5212. PMID: 20844608; PMCID: PMC2939395.
7. Park SJ, McGhee CN, Sherwin T. Medical students' attitudes towards research and a career in research: an Auckland, New Zealand study. N Z Med J. 2010 Sep 24;123(1323):34-42. PMID: 20930908.
8. Chakraborti C, Bourgeois III DJ, Gleeson E, Gunderson W. Identifying barriers to successful research during medical school. Medical Education Development. 2012 Mar 2;2(1):e2.
9. Raosoft. Sample Size Calculator by Raosoft, Inc. Sample Size Calculator by Raosoft, Inc.; www.raosoft.com. Retrieved April 14, 2022, from http://www.raosoft.com/samplesize.html. Accessed October 10, 2023. www.raosoft.com.
10. Amin TT, Kaliyadan F, Al Qattan EA, Al Majed MH, Al Khanjaf HS, Mirza M. Knowledge, attitudes and barriers related to participation of medical students in research in three Arab Universities. Educ Med J. 2012 May 7;4(1):47-55.
11. Askew DA, Clavarino AM, Glasziou PP, Del Mar CB. General practice research: attitudes and involvement of Queensland general practitioners. Med J Aust. 2002 Jul 15;177(2):74-7. doi: 10.5694/j.1326-5377.2002.tb04670.x. PMID: 12098342.
12. Khan H, Khan S, Iqbal A. Knowledge, attitudes and practices around health research: the perspective of physicians-in-training in Pakistan. BMC Med Educ. 2009 Jul 17;9:46. doi: 10.1186/1472-6920-9-46. PMID: 19615071; PMCID: PMC2719622.
13. Abusamak, M., AlQato, S., Alrfooh, H.H. et al. Knowledge, attitudes, practices and barriers of medical research among undergraduate medical students in Jordan: a cross-sectional survey. BMC Med Educ 24, 23 (2024). https://doi.org/10.1186/s12909-023-05002-9
14. Siamian H, Mahmoudi R, Habibi F, Latifi M, Zare-Gavgani V. Students' Attitudes Towards Research at Mazandaran University of Medical Sciences in 2015. Mater Sociomed. 2016 Dec;28(6):468-472. doi: 10.5455/msm.2016.28.468-472. PMID: 28144202; PMCID: PMC5239648.
15. Nel D, Burman RJ, Hoffman R, Randera-Rees S. The attitudes of medical students to research. S Afr Med J. 2013 Dec 6;104(1):33-6. doi: 10.7196/samj.7058. PMID: 24388084.
16. Vodopivec I, Vujaklija A, Hrabak M, Lukic IK, Marusic A, Marusic M. Knowledge about and attitude towards science of first year medical students. Croatian medical journal. 2002 Feb 1;43(1):58-62.
17. Mosa AA, Mahmood AJ, Farooq KF, Haji JR, Jacksi D, Mohamed-Saqid DK, Mnasakan TR. Medical Students' Knowledge, Attitude, Practice, and Perceived Barriers Towards Medical Research: A Cross-Sectional Study. Galician med. j. [Internet]. 2023Dec.7 [cited 2025Jul.12];31(1):e-GMJ2023-A09. Available from: https://ifnmujournal.com/gmj/article/view/e-GMJ2023-A09
18. Chellaiyan, Vinoth Gnana; Manoharan, Aravind; Jasmine, M.; Liaquathali, Fasna. Medical research: Perception and barriers to its practice among medical school students of Chennai. Journal of Education and Health Promotion 8(1):p 134, | DOI: 10.4103/jehp.jehp_464_18
19. Sharma SK, Thatikonda N, Ukey UU. Knowledge, attitude, practice and barriers for research amongst medical students of GMC, Nagpur. Journal of Research in Medical and Dental Science. 2021;9(4):41–47. Available from: https://www.jrmds.in/articles/knowledge-attitude-practice-and-barriers-for-research-amongst-medical-students-of-gmc-nagpur-70252.html