

# Knowledge, Attitude and Perceived barrier towards Medical Research among Undergraduates and Postgraduates Medical Students of Nepalgunj Medical College

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## ABSTRACT

**Introduction:** Medical science is one of the most advance and modern technology over the course of time period with extensive research and scientific knowledge of human body and health care to make incredible changes enabling the population remain healthy with mere absence of disease or infirmity. Research is considered as one of the useful measures to track the scientific advancement of a country. Promoting research skills in undergraduate and post graduate medical students help to develop scientific advancement in medical field of a country. **Aims:** To assess knowledge, attitude, and perceived barriers among undergraduate and postgraduate medical students. **Methods:** An institutional based cross sectional analytical study covering total 224 undergraduate and postgraduate medical students of Nepalgunj Medical College was from January 2022 to April 2022. A pre tested, pre designed, sets of questionnaire were provided to all recruited participants after obtaining informed written consent. Then informations generated by the study were analyzed for scientific result by using descriptive analysis and independent T- test. **Results:** Male students were 135(60.3%) whereas female students were 89(39.7%) only. The mean knowledge score was  $33.69 \pm 3.8$  and mean attitude score was  $19.67 \pm 2.34$ . The average 100(44.6%) had good knowledge and 118(52.7%) had positive attitude towards medical research. Most common perceived barrier was not having proper mentoring and research familiarity. Seventy Six(39.6%) undergraduate students had behavioral hesitation to participate in research while 21(65.6%) post graduate students showed social factor as one of the hesitancy to involve in research. **Conclusion:** Most of the participants had good knowledge regarding research and expressed positive attitude toward involvement in research activity. Some of barriers were lack of funds, awareness and research skills. This study would improve scientific knowledge and research skills for academicians and clinicians too.

**Keywords:** Attitude, Barriers, Knowledge, Medical, Research, students

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## INTRODUCTION

Medical science is advancing at a very fast pace with new discoveries in diagnosis, treatment, health care services and medical education. Research is one of the useful measure to track the scientific advancement of a country. Medical students are one of the core pillar of future academicians and consultant physicians or surgeons. So, inculcating research skills in undergraduate and post graduate medical students bring

positive impact in communicating and learning skills in the field of research.<sup>1,2</sup> Studies done in various medical institutes of India, Pakistan and Saudi Arabia, Iran have shown positive attitude towards health research in medical students.<sup>3,4,5</sup> But the rate of involvement in actual research ranges from 2-31%.<sup>4,6</sup> Most common perceived barriers for involvement included lack of funding, lack of skills and knowledge, lack of time and lack of mentors.<sup>2,4,6</sup> Study from Pakistan showed overall mean scores of students on attitude, knowledge, and barriers were

69.27 ± 13.44, 70.39 ± 15.67, and 72.46 ± 13.46, respectively.<sup>2,6</sup>

The data regarding level of knowledge, attitude, and perceived barriers of research among medical students of Nepal is largely unknown. Hence, this study was aimed to find out the knowledge, attitude and perceived barriers towards research among undergraduate and postgraduate medical students and to correlate the research activity and knowledge, attitude score with level of education. Since it helps to eliminate the research gap and hesitancy, medical students will eventually be able to conduct research in the field of medicine and to strengthen the health care system by producing better researchers in Nepal.

## METHODS

An institutional based cross sectional analytical study was performed among undergraduate and postgraduate medical students of Nepalgunj Medical College and Teaching Hospital from January 2022 to April 2022. The sample population were 351 students. Since research methodology starts in third clinical year of medical learning in our context, undergraduate students studying in clinical year i.e. third year to final year and all post graduate students were included in the study. Meanwhile, students of nursing and paramedical courses and undergraduate medical students studying in pre-clinical year were excluded. Those who do not give consent for participation in the study were also excluded. Among 351 target population, 300 students were from undergraduate level comprising 100 in third year, fourth year and final year respectively and 51 students in post graduate level. The sample size was 224 considering a standard normal variant at 5% type I error with 95% confidence interval i.e 1.96, taking 70% as expected proportion in population for prevalence of knowledge on research among medical students from previous study<sup>2</sup> and absolute precision (d) of 6%. The students were selected by stratified random sampling method. Considering each year undergraduate MBBS students and all post graduate residents as strata, 64, 64, 64 and 32 students were chosen from each strata respectively.

A self-administered, semi structured, questionnaire was distributed after searching multiple literatures<sup>6,7,8</sup> to assess the knowledge, attitude and barrier towards research in randomly selected 10 medical students for its validity and reliability. The participants involved in pre-testing were excluded from the final dataset. Some modification were done before the final questionnaire were distributed to participants. The verification of the questionnaire was made by a panel of three sections followed by sociodemographic variables of medical students in first section. The second and third sections included total 39 questions (both open and close ended) 14 questions on knowledge, 14 questions on attitude and 11 questions on perceived behaviours. It was assessed by scoring 1 to the correct response and 0 for incorrect response. Overall knowledge scores ranged from 0-14 for each correct answers. Individuals scoring 10 or above were categorized as good whereas 7-9 scores were brought under moderate and 0-6 as poor knowledge. Scores of each respondent were calculated by summing up the correct responses. Detailed explanation regarding objectives of study was provided and confidentiality was maintained throughout

the study. Informed written consent was also distributed among them. The research proposal was approved by Institutional ethical review committee, Nepalgunj Medical College Teaching Hospital, Banke. All response were entered into excel data sheet and coded for each of the parameters. Data was analyzed scientifically in SPSS version 25 by using descriptive statistic for continuous variables and independent T test were used to evaluate level of mean significance difference of two variables. The correlation analysis (Pearson's correlation) was applied between knowledge and attitude scores. P value less than 0.05 was considered as statistically significant.

## RESULTS

Completed proforma was obtained from sample population of 192 undergraduate and 32 postgraduate medical students with mean age 24.16 ±SD 1.99. Table I shows the demographic data of total participants. The mean knowledge score was 33.69 ± 3.8 and 100(44.6%) had good knowledge of research while mean attitude score was 19.67 ± 2.34, had 118(52.7%) positive attitude towards research. High percentage of students 166(74.1%) agreed that keeping evidence based medicine and research article critique chapter from third year of undergraduate level.

Variables	N (%)
Age	24.16 ± 1.99
Sex	Male (60.3)
	Female (39.7)
Programme enrolled in	Undergraduate (85.7)
	Postgraduate (14.3)

**Table I: Socio demographic variables (n = 224)**

Table II represents, frequency of socio demographic data, mean knowledge and attitude score. Though no significant mean difference in knowledge and attitude score as shown in table II, most of the students belonging to undergraduate level 94(42.0%) had previous exposure to research while only 80(35.7%) post graduate medical students fall on previous exposure to research activity. As shown in table III, there was strong positive correlation between research activity and post graduate students (r= 0.19, p = ≤ 0.01). The significant decline in research activity while they reach to post graduate level is probably due to curriculum gap in research participation subject after fourth year of medical leaning.

Level of education	Mean age	Gender		Knowledge score (mean)	Attitude score (mean)	P value
		Male (n)	Female (n)			
Undergraduate	23.91	115	77	33.74 ± 3.9	19.68 ± 2.4	0.45
Post graduate	25.62	20	12	33.37 ± 3.2	19.59 ± 1.6	0.09

**Table II: Comparison of socio-demographic profile and knowledge, attitude scores among medical students**

Level of education	Research activity (publication) (n)	Research activity (previous participation) (%)	Coefficient correlation <sup>®</sup>	P value
Undergraduate	23	42.0	0.091	0.17
Post graduate	11	37.5	0.19	0.004*

\*correlation significant at 0.01 level (2 tailed)

**Table III: Comparison of research activity among medical students**

Expressed by Pearson’s correlation, there was a negative correlation between two variables (Knowledge-Attitude) in undergraduate medical students ( $r = -.045$   $p \geq 0.01$ ). However, positive correlation between knowledge - attitude score was found in postgraduate student as given in (Table IV). It reflects that the level of knowledge increases in research while they reach to postgraduate level, also increases positivity towards research attitude.

Level of education	Coefficient correlation <sup>®</sup>	P value
Undergraduate	-.045	0.53
Post graduate	.030	0.87

Correlation significant at 0.01 level (2 tailed)

**Table IV: Correlation between knowledge- attitude score among medical students**

Table V shows the highest percentage of medical students in several perceived barrier towards research. Lack of experience of doing research fall under 158(82.3%) of undergraduate student and 26(81.3%) in postgraduate students. Lack of proper mentoring was found to be one of the common barrier in both level of education, 15(78.6%) and 41(71.9%) in undergraduate and postgraduate respectively. Most of the post graduate medical students 27(84.4%) faced lack of financial support than students belonging to undergraduate level 139(72.4%). It is one of the major perceived barrier while doing postgraduation to complete their thesis dissertation. Seventy Six(39.6%) undergraduate students had behavioral hesitation to participate in research while 21(65.6%) post graduate students showed social factor as one of the hesitancy to involve in research.

Most common perceived barriers	Level of education	
	Undergraduate (%)	Postgraduate (%)
Lack of funding	72.4	82.4
Lack of research skills	66.1	78.1
Lack of database accessibility	70.8	78.1
Lack of research familiarity	80.2	65.6
Lack of proper mentoring	78.6	71.9
Lack of publishing article in journal	77.1	78.1
Lack of experience doing research	82.3	81.3

**Table V: Showing percentage of common perceived barriers among medical students**

## DISCUSSION

Our study conducted on total 224 medical student including undergraduates and post graduates to evaluate student’s knowledge and attitude in medical research. To carry our research, adequate knowledge, positive attitude, meaningful skills are needed.<sup>9</sup> Since all medical students of medical colleges in Nepal are not well practiced and expert in the field of research, our aim is to evaluate knowledge and attitude score among them so that research knowledge will be strengthened for betterment of medical education and patient care in the field of medicine. Male students 135(60.3%) were highly dominant in number than female students 89(39.7%) in both level of education in our study while research done in Pakistan showed (66%) of female students and (33%) of male students.<sup>2</sup> The overall average score of the participants in this study regarding their knowledge towards research was 100(44.6%). Similarly, a study conducted in Malaysia on undergraduate medical students revealed that the overall average score of the students' knowledge regarding research work was (56.0%).<sup>9</sup> This present study revealed that medical students have a positive attitude, with an average score of 118(52.7%). A similar study was conducted by Amin et al, wherein the average score of the students for their attitudes toward medical research was found to be (77.9%).<sup>10</sup> This study reveals that knowledge and attitude score positively correlate to each other when the students reach to post graduate level.

Few studies done on postgraduates and undergraduates in Iran, Arabian Countries, Australia, and Pakistan shows that the attitude and knowledge of the participants did not improve increasingly with their academic years.<sup>11</sup> Most of the students felt the importance of research in clinical practice from third year of academic year and agreed to spend time for research. This finding was similar to the study done in South Africa reported the importance of research interest by most of the participants.<sup>12</sup> The highest attainable factor among undergraduate medical student was found to be lack of experience of doing research 158(80.3%) and lack of research familiarity 154(80.2%) in our study whereas is study Edone by Thirunavukkarasu A. et al in Saudi Arab showed lack of good research (65.0%) and poor collaboration between departments and research centers (60.6%).<sup>13</sup> Though research is mandatory in innate curriculum at post graduate level as a thesis only, it has been one ignored aspect of both Undergraduate and postgraduates, especially undergraduate curriculum in Nepal, only limited to few dedicated hours.

## LIMITATIONS

Since this study was carried out in only one institution, the results did not extrapolated to the whole population. The study design was analytical cross-sectional and hence it could not allow establishment of any causality or association between the two study variables.

## CONCLUSION

Medical research is very much required by beginners in the field of medicine. Expanding and strengthening on the field of

research is compulsion in today's advanced era. By providing research skills, proper mentoring, training, facilities, little or adequate funds, third world country like Nepal can also explore on the field of research. The result has drawn good knowledge score on student towards research but unknowingly has lesser mean attitude score on performing research activity, probably because of lack of research funding, proper mentoring, research skills and trainings, and also lack of experience doing research 158 (82.3%). The result shows that students has not yet perceived research as worth doing and for contributing in future career. Gaps should be addressed to improve research activity both in academic and clinical part of medical learning. Research oriented practice and scientific based evidence learning are also important for post graduate medical students. The findings of this survey can further instigate to formulate the syllabus as well as research activities.

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