

## Perceptions and attitudes towards research amongst medical students at Shifa College of Medicine

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### Abstract

**Objective:** To understand medical students' perceptions and attitudes towards research to help facilitators design specific courses according to their needs.

**Methods:** The cross-sectional study was conducted at Shifa College of Medicine, Islamabad, Pakistan, from May to November 2013, and comprised undergraduate medical students. A pre-tested questionnaire was used for data collection. Students' response was recorded on a Likert scale from 'strongly disagree' 1 to 'strongly agree' 5. Analysis was done using statistical SPSS17.

**Results:** Of the 195 students enrolled, 172(88%) responded. Overall, 78(45.3%) students said they were aware of research. Research was considered useful for their professional careers and relevant to their daily life by 133(65.7%) students, while 72(41.9%) did not consider it worthwhile to pursue research as a career. Besides, 71(41.3%) students enjoyed research, while 120(70%) perceived research as stressful and 107(62.2) complex.

**Conclusions:** Most students considered research valuable but at the same time they perceived it as stressful and complex.

**Keywords:** Research study, Perceptions, Attitudes, Undergraduate medical students, Subgroup analysis. (JPMA 66: 165; 2016)

### Introduction

The development of research capacity at undergraduate level is essential to produce good-quality researchers in the long run.<sup>1</sup> Promoting a supportive undergraduate research environment is, therefore, recommended.<sup>2</sup> The need for medical institutions to focus on the integration of specific research skills and training within all aspects of the undergraduate medical curriculum has been emphasised<sup>3</sup> so that these skills are perceived by undergraduates to be relevant to the routine practice of all doctors and not just those engaged in full-time research. Besides, medical students' involvement in research at an earlier age is strongly connected with students' research initiative at postgraduate level.<sup>4,5</sup>

The core curriculum must ensure that relevant and appropriate research expertise is attained by all graduates who are then provided with a suitable foundation from which they can develop such specialised research skills as may be required in their careers.<sup>4</sup>

Over the years, medical education has evolved from learning facts to acquiring skills, knowledge and

attitude.<sup>6</sup> This makes it very important to promote critical thinking and reasoning skills in medical students at an earlier age in order to develop a positive attitude towards healthcare research.<sup>7</sup> Several studies have been done in this regard. In 2005, a cross-sectional survey of second and fourth year students in three medical schools in Ontario showed significant differences in attitudes towards research and scholarship in the undergraduate curriculum.<sup>8</sup> Similar results were reported in a cross-sectional survey of medical students from Pakistan which showed a moderate level of knowledge and attitude towards research.<sup>6</sup>

Several studies have reported decline in the number of physician-scientists.<sup>9,10</sup> Research motivation is influenced by previous educational background, research experience and also possibly culture and gender. Similar findings were reported in Pakistani studies.<sup>11</sup> Postulated explanations for the decline of the physician-scientist include less financial incentive, family, practice philosophy, lack of research training and inadequate exposure to research before career paths are determined, but the primary reason is the development of research appetite at an earlier stage in the student.<sup>12</sup> Keeping all these barriers into account, all opportunities to bring research-active staff and research-enthusiastic undergraduates together must be explored and the value of undergraduate research must be recognised by the funding authorities.<sup>8</sup> Furthermore,

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in previous studies also, there has been a significant movement towards providing medical students with early research experience within the medical school curriculum.<sup>13,14</sup>

Developing positive attitudes towards research and student motivation at undergraduate level can increase the number of basic and clinical healthcare researchers and, hence, well-developed research centres in Pakistan. In this context, research in Pakistan has explored problems of awareness and perceptions about research to an extent, but does not highlight the factors/attitudes which determine the medical student's choice of research as a career.<sup>12</sup>

The current study was planned to focus on the perceptions and attitudes of undergraduate students towards research in Pakistan. The results will help in establishing an appropriate research environment at the undergraduate level in our medical schools.

### Subjects and Methods

The descriptive cross-sectional study was conducted at Shifa College of Medicine, Islamabad, Pakistan, from May to November 2013, and comprised undergraduate medical students. The College offers a five-year course for the bachelor of medicine and surgery (MBBS) degree. Most of the curricular content delivery is in the form of integrated modular system. The first two years are preclinical, covering most of the Basic sciences with clinical integration, which increases from third year onwards. The curriculum includes introduction to the basic principles of epidemiology, design of clinical trials, research methodology and internet search strategies for research evidence.

Students from first and second years willing to participate in the survey were included, while third, fourth and final year students were excluded as most of these students are actively involved in research either as a requirement by the institution or as part of their own interest and previous studies have already highlighted their attitudes.<sup>5,6</sup> Students who did not give consent for participation in the trial were also excluded. Consecutive sampling technique was used.

Institutional review board approval was obtained before starting data collection. After taking informed written consent, students were asked to fill a questionnaire based on attitudes towards research scale.<sup>15</sup> The modified questionnaire comprised 19 close-ended questions. The first four items were about the students perceptions about the term research, and 15 items were about the students' attitudes. The attitudes

were further divided into 5 categories: usefulness of research, research anxiety, positive feelings about research, relevance of research to daily life, and difficulty of research.

The questionnaire was pilot-tested on 10 participants to estimate the time required to fill the questionnaire and determine the comprehension of the questions by the participants. The questionnaire was distributed to the students at the end of their teaching session in the college. Students' response was recorded on the Likert scale for each question, from 'strongly disagree' 1 to 'strongly agree' 5.

Data was analysed using SPSS 17. Frequency and percentages were calculated for categorical variables. Mean and standard deviation were calculated for numerical variables. Though study design was descriptive, subgroup analysis was done to see difference in response between first and second year medical students and then between male and female students using Chi-square test. For all purposes,  $p < 0.05$  was considered significant.

### Results

Of the 195 students approached, 172(88%) responded and returned the questionnaire First year students were 90(52.3%), while 82(47.7%) were from the second year. The overall mean age was  $19.78 \pm 1.159$  years. There were 97(56.4%) boys and 75(43.6%) girls.

The first part of the questionnaire assessed the students' understanding of the term research (Figure). Overall, 78(45.3%) said they were aware of research;

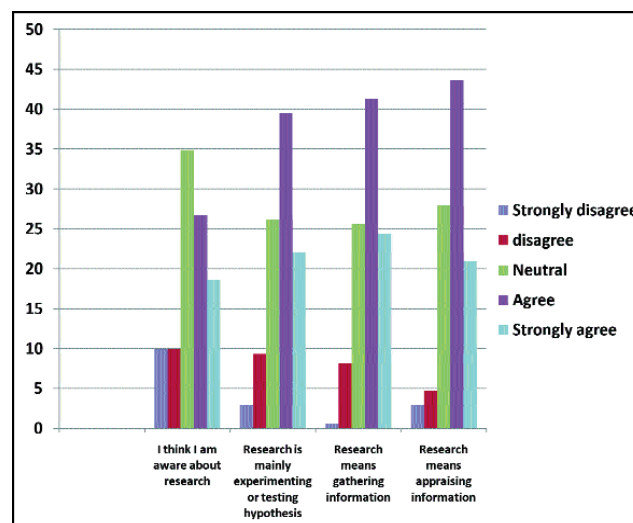


Figure: Students' perceptions about research (%).

**Table:** Attitudes towards Research (n=172).

Question	Strongly disagree	disagree	Neutral	Agree	Strongly agree
<b>Factor 1: Research usefulness for profession</b>					
I think medical research is a good career for me	33(19.2)	39(22.7)	36(20.9)	37(21.5)	27(15.7)
Research training should be a part of undergraduate curriculum	15(8.7)	21(12.2)	41(23.8)	44(25.6)	51(29.7)
Research should be incorporated in professional training	8(4.7)	17(9.9)	51(29.7)	42(24.4)	54(31.4)
Performing research is useful and valuable for my profession	5(2.9)	12(7.0)	42(24.4)	50(29.1)	63(36.6)
The skills acquired in research will be helpful to me in future	5(2.9)	11(6.4)	36(20.9)	49(28.5)	71(41.3)
Research is important to advance knowledge	4(2.3)	2(1.2)	15(8.7)	52(30.2)	99(57.6)
<b>Factor 2: Research anxiety</b>					
Performing research is stressful	9(5.2)	23(13.4)	46(26.7)	54(31.4)	40(23.3)
Performing research is a complex subject	6(3.5)	17(9.9)	42(24.4)	54(31.4)	53(30.8)
I feel insecure concerning the analysis of research data	17(9.9)	31(18)	66(38.4)	35(20.3)	23(13.4)
<b>Factor 3: Positive attitudes towards research</b>					
I enjoy performing research	21(12.2)	25(14.5)	55(32.0)	34(19.8)	37(21.5)
Most students benefit from research	6(3.5)	12(7)	44(25.6)	64(37.2)	46(26.7)
<b>Factor 4: Relevance to life</b>					
Research-orientated thinking plays an important role in everyday life	8(4.7)	9(5.2)	45(26.2)	59(34.3)	51(29.7)
Research is important to discover new things	4(2.3)	1(0.6)	11(6.4)	61(35.5)	95(55.2)
<b>Factor 5: Research difficulty</b>					
I find it difficult to understand the concepts of research	36(20.9)	43(25.0)	44(25.6)	31(18.0)	18(10.5)
I am worried that I will make many mistakes in research	27(15.7)	24(14.0)	52(30.2)	35(20.3)	34(19.8)

60(34.9%) had a neutral response; 106(61.6%) said research was testing hypothesis; 133(65.7%) said research was gathering information; and 111(64.5%) said it was about appraising information. There was no statistically significant difference in responses in terms of either gender or year of study.

The factor structure of attitudes towards research scale comprised five factors (Table).

Regarding usefulness of research, 72(41.9%) students did not consider it a good career choice despite the fact that 113(65.7%) agreed that research was very useful, 120(69.8%) said it was helpful, 95(55.3%) said it should be a part of undergraduate curriculum, and 96(55.8%) said it should be incorporated in professional training. There was no statistically significant gender difference in response except to item 5( $p=0.01$ ) where females considered it more helpful. The first and second year students had a similar response except that the first year students were more in favour of incorporation of research in professional education ( $p=0.009$ ) and more in favour of taking it up as a career ( $p=0.0001$ ).

The second factor included three items related to stress and tension and, hence, was labelled as research anxiety. Majority agreed that research was stressful 120(69.8%) and complex 107(62.2%). Besides, 58(33.7%) agreed that they felt insecure in research analysis, 66(38.4%) had a neutral response and 48(27.9%) did not

agree. There was no statistically significant gender difference in the item response, but second year students considered it more stressful ( $p=0.02$ ) and felt more insecure in research activity ( $p=0.014$ ).

The third factor, which included 2 items, was called positive attitudes towards research, and 71(41.3%) enjoyed research, 55(32%) were neutral, while 46(26.7%) didn't agree. Besides, 46(26.7%) agreed that students benefit from research. Female students considered it more beneficial ( $p=0.007$ ) than their male counterparts, while no difference in first and second year students was recorded.

The fourth factor referring to the use of research in daily life was labelled relevance to life. More than half 110(64%) agreed that research was related to their daily life and 156(90.7%) agreed that research was important to discover new things. No significant difference in response with regard to gender or class was observed.

The fifth factor research difficulty included two items. Almost half 79(45.9%) disagreed that the concepts were difficult to understand, while 49(28.5%) found it difficult. Most were of the opinion that they would make mistakes during the research 69(40.1%). No gender difference in the response was observed, but second year students considered it more complex ( $p=0.01$ ).

## Discussion

The study reports the perceptions and attitudes towards research during educational experience at medical school. The significance of identifying these attitudes lies in their understanding by the facilitators so that they are able to devise methods to convert them into more positive attitudes. The results in our study are diverse like previous studies that reported significant differences in attitudes towards research among students.<sup>8,12</sup>

Half of the students thought they are aware of research while other stayed neutral. This finding may be due to the fact that our students were from the first and second years that are in the early years of research training compared to previous studies where fourth and fifth grade students were also included.<sup>5,6</sup> Most of the students considered research as testing hypothesis, gathering and appraising information. This finding is comparable to a study which showed that students have a very narrow definition of research.<sup>3</sup> Another study among medical students in Pakistan also showed moderate level of knowledge and attitudes towards health research.<sup>6</sup>

The first factor we assessed was research usefulness. Most of the students considered it useful and helpful similar to previous research<sup>16</sup> but only one-third considered it a good career for them. This study, however, did not explore the possible reasons for it. This is opposite to an earlier finding where only half of the medical students reported appeal towards medical research as a career and a large proportion of the students who were positive about the research as career felt that it would enable them to make advances and improvements in the medical field.<sup>3</sup> Almost similar findings were reported by a study where 44% said research will significantly play a role in their future career.<sup>8</sup> Although a vast majority of students recognised the importance of research, but there was great diversity in the opinion regarding the institution of mandatory research projects at under- and post-graduate levels. This is in contradiction with previous study which reported 67.45% agreement towards mandatory research for all medical students.<sup>16</sup> Another study also recommended mandatory participation in research to improve students' knowledge and attitudes towards research.<sup>17</sup> This reluctance to incorporation of mandatory research indicates anxiety and difficulty at research despite the fact that they consider research useful.

The third and fourth factor in our study showed more

positive attitudes towards research and more relevance to their day-to-day life. From this we can draw inference that students who have more positive attitude and consider it more related to their life also consider it more useful.

The second and fifth factor regarding research anxiety and difficulty indicated that students considered it more stressful and complex and that they would perhaps make a lot of mistakes, and to half of them the concepts were difficult to understand as reported previously.<sup>15</sup> Previous studies reported that both knowledge and attitude improved significantly with increasing years of study at medical school<sup>6</sup> but in our study the second year medical students considered it more difficult and stressful compared to first year medical students. This may be due to the fact that second year students are exposed to more complex aspects of research compared to first year medical students, necessitating dedicated research mentors and research time.

The study has all the limitations of any a self-reported survey without independent verification. Secondly, postgraduate and professionals were not included. Thirdly, this was a data from a single institution and it may not be possible to generalise the findings. Further studies at undergraduate level would give better insight into the dilemma.

## Conclusions

There was great diversity in the students' attitudes towards research, necessitating teaching programmes based on individual needs. Although the students considered research useful and related to their daily life, they considered it stressful at the same time.

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