

## Approach and View of Medical Students toward Basic Medical Science Subjects: A Study at Bolan Medical College Quetta

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### Abstract

**Objective:** To assess the view and approach of medical students towards basic medical science subjects beside its clinical relevance in Bolan Medical College Quetta Pakistan.

**Method:** This was a cross sectional study designed in Bolan Medical College Quetta Pakistan, from March-2021 to May 2021. For collection of data pre tested questionnaire was used. All options were rated by using likert scale, ranges from strongly disagree to agree. The data were analyzed by using SPSS-27.

**Result:** A total of 200 students participated in this study. Among them 40 (20%), 55 (27.5%), 35 (17.5%), 35 (17.5%), and 35 (17.5%) were of 1st, 2nd, 3rd, 4th, and final year students respectively. 33 (16.5%) students were interested to join as career, 107(53.5%) were never join the basic side. Less financial attractions are in basic side by 130 (65%) that's why not interested. If modular system apply this may attract the students to join as career, the reply was in 65% (130) don't know. The clinical relevancy was 53.5% (107) anatomy, 47.5% (95) biochemistry while 41.5% (83) physiology.

**Conclusion:** This study concluded that students have very low attraction for basic medical science subjects but this can be elevated with way of teaching methodology and using clinical aspect. Students are very much reluctant to join basic side as their career due to less financial attractions.

**Key words:** basic medical science, medical students, relevance, clinical

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### Introduction

A number of science fields have been added to the existing medical science curriculum based on bio-medical subjects. The behavioral sciences and to some extent social sciences have been included in basic sciences, for making the base of medical students much stronger.<sup>1</sup> Initially the subjects of basic medical sciences are anatomy, physiology and biochemistry which mainly explains the sciences of functional, structural and bio-

chemical properties of human body. These subjects are the major part of any medical curriculum and vital in understanding the clinical practices.<sup>2</sup> Various students of medical science refresh their clinical knowledge from their basic science medical knowledge. Though the role of basic medical science in learning the clinical practice has been contested often.<sup>3</sup> In Various institutes of medicine, advanced modified curriculum have been introduced, all of which have single or novel system curricula on problem based learning basis.<sup>4</sup> This part mainly focuses the student's approach towards problem based, integrated and clinically applicable methods of study.<sup>5</sup> This study technique boosts the active involvement of medical students and helps for lifelong learning and affection for basic medical science subjects.<sup>6</sup> The students who studied the usefulness of problem based learning found that the knowledge they have got from basic medical science study was very much constructive.<sup>7</sup>

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The basic medical science knowledge could be used to comprehend spontaneous tools of disease processes that advances and formulates the accuracy of diagnosis of diseases.<sup>8</sup> Meagre assimilation of basic medical sciences to clinical exercise through medical education may weaken the importance of these subjects.<sup>9</sup>

The knowledge of basic medical education can serve for enhanced understanding of clinical medicine and increases the basic learning.<sup>10</sup> Most undergraduate medical students casually expressed that their reminiscence of medical field in basic medical science is lesser than anticipated and that the content of those prescribed courses does not appear appropriate to their consequent clinical work or studies.<sup>11</sup> Some students think that basic sciences knowledge can only hinder in the progress of clinical work.<sup>12</sup> During rest of medical studies, the students slow<sup>7</sup> but increasingly develop negative views about basic sciences curriculum.<sup>13</sup> Some parts of South East Asia revealed the positive trend to develop more admiration for basic sciences in the medical students.<sup>14</sup> Research also proved that only few percentile of medical students keep the basic sciences subjects as their career specially the senior class students. Now a days students feel that extra curriculum made for basic sciences over tired their mental exertion which repel them to study the basic sciences.<sup>15</sup> In another US study revealed that avoiding to choose basic sciences as future career was their wish to become clinical specialist for better salary.<sup>16</sup> Many studies have been done on medical student's view on basic medical sciences globally but trend of under medical graduates in Pakistan is blurred on choosing basic sciences as career. During first couple of study years of medical students the retention rate of basic science subjects remained quite high but this becomes ambiguous during progress in clinical years.

## Material and Methods

This cross sectional study was conducted in Bolan Medical College Quetta during the period of March, 2021-May, 2021. A predefined questionnaire was used for data collection. A short trial of questionnaire was conducted on small group of students' in February 2021, prior focusing research on full basis. Participants of this study were all students from first year to final year mbbs in Bolan Medical College Quetta during year 2021. Total of 200 students participated in this study. Questionnaire recollected after filling by students asking questions about basic science subject interests. Opinions rated according to positive point Likert scale. After

completion the data were rechecked. Data were entered in SPSS version 26 for analysis. This analysis was descriptive to proceed for independent variables. Analysis of different opinions were done. Chi square test on variables performed and significance level of  $P < 0.05$  was fixed.

## Results

A total of 200 students participated in this study. One hundred and fifty (75%) of all were in the age of 23-25 years. Most of the students 150 (75%) were male. Half of the students came from rural parts of the country. Almost all of the students were Muslims. Ninety (45%) students were interested in basic medical science subjects.

110 (55%) of students do not want to join the basic science subjects as career. Majority 140 (70%) of the students do not have to guide the juniors to join the basic side as career.

The reason for not joining basic side were amongst 120 (60%) due to less financial attraction with decreased promotion chances. Out of all students assessed, 160 (80%) of students agreed that basic medical science teachers do not encourage students to join this field. (Table-I)

**Table 1:** Response of Students on Socio Demographic Perception

Variables	Description	Frequency	Percentage
<b>Age</b>	18-22	25	12.5
	23-25	150	75
	26-30	25	12.5
<b>Gender</b>	Male	150	75
	Female	50	25
<b>Resident</b>	Urban	100	50
	Rural	100	50
<b>Religion</b>	Muslim	190	95
	Others	10	05
<b>Student of year</b>	First year	40	20
	Second year	55	27.5
	Third year	35	17.5
	Fourth year	35	17.5
	Final year	35	17.5

Amongst students asked for their interest in basic medical subjects, 45% of students showed for no interest. 35% have minimum and only 20% shown their interest in basic subjects.

Interest to join the basic side as career, majority 53.5% agreed on never join as career. While 30% replied may be and only 16.5% positively replied to join. On any

**Table 2:** Medical Students' Interest and Perception to Basic Medical Science subjects

Variables	Rate	Frequency	Percentage
Do you have any interest in Basic medical science subjects	Yes	40	20
	Minimum	70	35
	No	90	45
Interested to join as career	Yes	33	16.5
	Maybe	60	30
	Never	107	53.5
Do you advise juniors to join it as career	Sure	55	27.5
	Maybe	44	22
	Never	101	50.5
Why not to join Basic medical subject as career	Low financial growth	130	65
	No promotion	12	6
	Family pressure	19	9.5
	No clinicals	09	4.5
	Low society value	30	15
Basic science teacher encouragement is vital	Yes	70	35
	No	66	33
	Don't know	64	32
Financial attraction must be given to teachers	Yes	120	60
	No	80	40
Modular curriculum may increase the basic side attractions	Yes	23	11.5
	No	47	23.5
	Don't know	130	65

advice juniors to join it as career, 50.5% never advised their juniors for joining the basic side. 22% voted for maybe while 27.5% willing to give advice their juniors to join the basic medical subjects as career. On the question why not to join the basic side as career, majority 65% of the students replied in refusal due to low financial growth/ aspect. 6% replied for no promotion, 9.5% refusal due to any family pressure, 4.5% in no clinical practice and 15% in low or no favorable status in the society. The question of basic medical science teaching faculty's encouragement gives equal percentile by yes, no, don't know in 35, 33, and 32% for all. The financial attraction to the basic side faculty gives majority replies in 60% positively. The implementation of modular curriculum can confer good attraction, the reply was very strange in don't know (65%) by students. Overall the subject of anatomy given clinically relevant basic subject by 53.5% students. 8.5% students agreed on irrelevancy to clinical aspect of biochemistry. While the subject of physiology is moderately relevant to clinical side 56.5%. Chi-Square Test Comparison showed amongst total 200 respondents, majority (90%) of the students agreed on the subject anatomy as the lengthiest subject in both years of initial Profs. While the difficult one were physiology (78%). Students commented on anatomy as most interesting subject (88%) in both 1st

**Table 3:** Clinical Significance of Basic Medical Subjects

Subjects	Irrelevant		Moderately relevant		Highly relevant	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Anatomy00		00	93	46.5	107	53.5
Biochemistry	17	8.5	88	44	95	47.5
Physiology	04	02	113	56.5	83	41.5

**Table 4:** Chi-Square Test Comparison

Variables	Anatomy			Physiology			Biochemistry		
	Frequency	percentage	P value	Frequency	Percentage	P value	Frequency	percentage	P value
The course content is really extensive?	135	67.5	0.02	55	27.5	0.12	10	5	0.01
The subject entertains you during the study?	90	45	0.33	87	43.5	0.11	23	11.5	0.41
Knowledge of the subject is good for clinicians?	111	55.5	0.25	68	34	0.01	21	10.5	0.04
Basic subjects can cover clinical aspect without going into detail	77	38.5	0.04	66	33	0.13	57	28.5	0.01
Can these subjects confer you hints during clinical usage?	144	72	0.44	34	17	0.41	22	11	0.33
Can these subjects if integrated gives help in clinicals?	99	49.5	0.13	59	29.5	0.17	42	21	0.31
Do you think PBL can go a lot during clinical practices?	87	43.5	0.02	77	38.5	0.07	36	18	0.02

& 2nd years. Students considered the subject of physiology got the most (92%) connected with clinical subjects required for post-graduation. 90% of students argued in favor of anatomy in clinical surgery. The subject of biochemistry got low percentile (33%) to clinical touch by students. Most of the students (95%) entertained physiology as subject of help during the whole course work. (94%) students agreed on PBL- problem based learning can help in better understanding of the subjects' anatomy, physiology and biochemistry consequently (Table-IV).

## Discussion

Problem based learning is an exclusive form of teaching committed to emerging students, self-learning with practicing skills. After several years of developing medical education, PBL has been recognized as the best in most of the medical institutes all over the world.<sup>18</sup>

This is quite clear that the subjects of basic medical science are prerequisite for other clinical science field which helps the clinical aspect of disease.<sup>19</sup> This study tried to discover the awareness and approach of medical students towards basic medical sciences with clinical significance. This study also tried in finding out the partialities about basic medical sciences as the future career and the motivation for students not being attracted in basic science subjects. This study revealed that only 20% of students were interested in basic sciences as career.<sup>20</sup> This type of study conducted by Kitajima et al which explored that a high percentage (74%) of medical students was keen interested to join basic sciences as career.<sup>21</sup> The same sort of study conducted in Japan where medical students manifested very low interest (24.7%) in basic sciences<sup>22</sup>. This is may be a difference in two medical institute's curriculum. Related to low interest of students to join basic sciences as future field, large number of students showed the reason of its financial aspect and very slow chances of promotion in such field. These findings were manifested in the studies conducted in China, Malaysia and South Asia. Very limited research, teachings, clinical aspect and laboratory works are the reasons why students are not taking any interest.<sup>23</sup> Many other studies have probed into these problems which explained as salaries and financial aspects are now envisaged as major factors that attracts the students to choose basic sciences as career, that's why students are more interested in clinical fields.<sup>24</sup> Moreover maximum number of students in this study still attracted to be good reputed clinician in future some-

what a researcher or basic medical science teacher. Many research conducted on medical students revealed that the knowledge obtained in clinical atmosphere to understand basic medical science given more understandings and attractions.<sup>25</sup> Majority of the students agreed on importance of combination of basic medical sciences with clinical subjects which helps in better understanding of subjects. This was very much clear in the study that that the subjects of anatomy and physiology were relevant regarding clinical field but biochemistry was irrelevant in its clinical aspect. The same study conducted with Australian medical students.<sup>25</sup> This difference of clinical relevance may be due to disparities in basic medical side teachers and methodology of teachings. If looks into the contents of the subjects, quite a number of students claimed about anatomy as the most exciting subject amongst all basic science subjects during studying 1<sup>st</sup> and 2<sup>nd</sup> year. This was endorsed in a study conducted in India.<sup>26</sup>

The resilience of basic medical science understandings has always been a substance of contention. A famous faith by physicians and medical researchers is that during clinical practices, the knowledge of basic medical science subjects which they got during their medical schooling is lost.<sup>27</sup> Students also apprehend the significance of PBL, with large number of students expressed that this could help in understanding their subject very well. However this methodology cannot conceal the whole syllabus, but other cohesive method may be used, with which few topics can be covered by traditional old way of teaching and rest by clinical way. A firm collaboration between basic and clinical departments with inspired faculty devoted to promote the excellence of medical education.<sup>28-29</sup>

## Conclusion

This study concluded with the observations that students have very low attraction threshold for basic medical science subjects but this can be elevated by teaching methodology and clinical teachings. Students are very much reluctant to join basic side as their career due to less financial attractions. Anatomy and physiology remained good relevant subjects to clinical field. Better to incorporate the basic medical science subjects to clinical ones for understanding the knowledge.

**Conflict of Interest**

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### Authors Contribution

**ZK:** Conceptualization of Project

**MM:** Data Collection

**MZ:** Literature Search

**SJ:** Statistical Analysis

**ARZ:** Drafting, Revision

**AZ:** Writing of Manuscript