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TEACHING STRATEGIES;
PERCEPTION OF MEDICAL STUDENTS, USED IN BASIC SCIENCES YEARS

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ABSTRACT… Objectives: To determine preferences and perceptions of medical students about teaching strategies in basic sciences years. **Study design**: Mixed method study. **Place and Duration:** Khawaja Muhammad Safdar Medical College, Sialkot, from March 2014 to July, 2014. **Methodology:** A total of 77 medical students of 3rd year MBBS were selected through non-probability convenient sampling for this study. A questionnaire to know about their preferences and comments about teaching strategies was distributed to the students. A focus group discussion was also carried out to know in depth opinion of students about different teaching strategies. **Results:** Mean age of the medical students was 22.75 ± 1.05 years. Twenty one (27.3%) participants were males and 56 (72.7%) females. Out of 77 students, 22 preferred interactive lectures; 16, small group discussion; 20 problem based learning, 10 preferred demonstration on models. Only 01 students preferred one-way lecture as the best teaching methodology.More female students (30.3% vs 23.8%) preferred interactive lectures and more male (28.6% vs 17.8%) students preferred small group discussion as their teaching strategies. **Conclusion:** Majority preferred interactive lectures (28.57%) and problem based learning (25.98%) as teaching strategies. Aligning our teaching strategies with preferences of the medical students will improve learning and academics.

Key words: Instructional strategies, teaching strategies, lectures, interactive learning, problem based learning, active learning

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INTRODUCTION

In recent years, a great paradigm shift has been observed in the field of education in general and medical education in particular. New concepts and themes have come up in the field of medical education. Traditional teacher centered approach is gradually being replaced by a student centered learning. Teachers who conceive teaching as simple transmission of knowledge use content/ teacher centred approaches, and teachers who take teaching as facilitating learning use learner centred approaches.[1]

In our country majority of medical colleges are still using the traditional methods of instruction (lectures) where teachers talk and students listen passively. These methods are used despite the strong evidence that better learning is achieved by other methods of instruction.[2,3] Best teaching strategies are those which make the students active participants in the learning process. Teaching strategies refer to the methods, techniques and procedures a teacher uses during instruction to achieve desired learning objectives. Learning activities are teacher guided instructional tasks or assignments done or performed by the students. Teaching strategy does not in itself imply an active or passive instruction. A teacher may select a teaching strategy like a one way traditional lecture where students are required simply to listen (passive learning). Conversely a teacher may select problem based learning session where students are required to participate actively in the whole learning activity to learn different details and solve a certain problem. Teachers sometimes prefer to stay with lecture methods and other traditional teaching strategies rather than using active teaching techniques and strategies, reason being their fear of not covering the required educational content and their concern of losing

control of proceedings in the class.

Researchers have consistently supported and demonstrated that students learn better if they are actively involved in the educational content they are being taught.[4,5] Active learning is a process whereby students engage in activities, such as reading, writing, discussion, or problem solving that promote analysis, synthesis, and evaluation of educational content. Interactive lectures, class quiz, one best MCQs at beginning or end of lecture, clinical scenarios, problem-based learning, small group discussions, tutorials, patient based learning, demonstrations, clinical skills lab , bed side teaching and simulations, all are some approaches that promote active learning.

Teaching strategies in a society could be affected by many variables.[6] Understanding the way students learn, helps in selection of the teaching strategies best suited to them.[7]

The aim of this study was to know the students' preferences of various teaching strategies used in basic sciences and their in-depth perception about these strategies.

METHODOLOGY

This mixed method study was conducted at Khawaja Muhammad Safdar Medical College, Sialkot from March 2014 to July 2014. Approval for this study was obtained from Institutional review board. Seventy seven (77) out of 95 medical students of 3rd year MBBS were selected through non-probability convenient sampling. All students, both male and female, who had appeared in the second professional university examination were included in the study and those students who had been relegated to this class because of failing supplementary university examination were excluded from the study. An informed consent was sought after a re-assurance that the data obtained will remain confidential and will not be shared with any administrative authority. The students were explained the purpose and aim of this study. The participants were given option to mention their names or otherwise on questionnaire. The participants were given 30 minutes to fill the questionnaire. Questionnaire was distributed to the participants to know their preferences for teaching strategies (instructional strategies) and teaching aids. All the students had appropriate exposure to all the teaching strategies like One-way lecture, interactive lectures, small group discussion (SGD), students presentation in tutorials, Problem based learning (PBL), demonstration on models and specimens (DMS), guest speakers and self-study. Student were required to select one out of nine teaching strategies they thought was best as far as learning was concerned. They were also asked to select the best teaching aids out of six. Students were also asked to score every teaching strategy regarding its usefulness in learning on a 5 point Likert Scale from strongly agree (5) to strongly disagree (01). This Questionnaire also contained open ended questions asking the students suggestions, reasons and comments for liking or disliking any teaching strategy. After studying the comments and opinions written by the medical students in response to open ended questions, certain points needed further clarification and discussion. For this purpose a focus group discussion was carried out after 10 days with 15 students (8 females and 07 males) to further clarify their opinions and get better insight to the various aspects of different teaching methodologies. Students were selected through non-probability convenient sampling. Focus group discussion (FGD) involved 1st and 2nd researcher and it continued for 60 minutes. It was audio- recorded and transcribed later. Content analysis of the qualitative data obtained from comments of the students and FGD was carried out independently by the two researchers. Common themes and sub-themes (codes) were identified and any coding differences between two researchers were resolved through discussion and consensus.

Data was analysed by SPSS, version 20. Frequency and percentages were calculated for categorical variables like gender, and teaching strategies and teaching aids. Mean and standard deviations were calculated for quantitative variables like age and Likert Scale scoring for

teaching strategies.

RESULTS

Seventy seven (77) students participated in this study. Age of the participants ranged from 21 to 25 years with a mean of 22.75 ± 1.05 years. Twenty one (27.3%) of the participants were males and 56 (72.7%) were females.

In this study, students were asked to select the teaching strategy by which they learn the best. Detail of students' preferences for different teaching strategies is given in Table-I. Majority of the students chose interactive lectures (22, 28.57%), problem based learning (20, 25.98%) and small group discussions (16, 20.78%) as their preferred teaching strategies.

Students also showed their perception about usefulness of each strategy by scoring on a Likert Scale. Frequencies and percentages of responses for each strategy along with mean scores and standard deviations are given in Table: 02. If we take strongly disagree and disagree as combined (SD+D), then overwhelming majority (71, 92.2%) rejected one way lecture as the best teaching method while strongly supporting (Strongly Agree+Agree) interactive lectures (63, 81.9%), SGD (67, 87.1%), DMS (66, 85.5%) and PBL (60, 78%). Further details are given in Table-II.

Medical students also wrote comments and reasons about their liking of any particular teaching methodology and also gave suggestions. Comments were read together with transcribed verbatim of FGD and common themes from both sources were identified and grouped together in Table-III under perceptions (positive and negative) and suggestions regarding each teaching strategy. One way traditional lecture was strongly criticized by many students as dull, boring, less interesting , and teacher centered. It was also disliked because of lack of student role , lack of student teacher interaction and any feedback. One way lecture was also not favored as it was lacking any understanding about prior knowledge of the students, and questions were usually not encouraged. Interactive lectures were strongly favored because of student teacher interaction, two way communication, brain storming , question answer session kept interest in the lecture alive. SGD also got very favorable remarks as being encouraging, having greater student participation, close interaction and chance to discuss queries and solve ambiguities. Students also gave very positive remarks about PBL , advocating its ability to generate discussion, brain storming, close and mandatory participation and sharing of knowledge. PBL was also liked because of deep insight into the subject and applied knowledge. Demonstration on models and specimens was also students' favorite because of visual learning, conceptual learning, retention of knowledge, and seeing the physio-pathological process. Details of perceptions and comments about further teaching strategies are given in Table 03.

SA=strongly agree (05), A=Agree (04), Neutral (03), D=disagree (02), SD=strongly disagree(01). Data presented is shown as means, standard deviations, frequencies or percentages of responses for individual teaching methodologies.

Teaching Methodology	Number	Percentage	Male(n=21)	Female(n=56)
Interactive Lectures	22	28.57 %	5(23.8%)	17 (30.3%)
Small Group Discussions	16	20.78 %	6 (28.6%)	10 (17.8%)
Laboratory work	02	2.60 %	1 (4.8%)	1(1.8%)
Specimens and models	10	12.98 %	3 (14.3%)	07(12.5%)
Self-study	04	5.10 %	01(4.8%)	03(5.4%)
Problem based learning	20	25.98 %	4(19.0)	16(28.6%)
Student's presentations	01	1.30 %	01 (4.8%)	00
One-way lecture	01	1.30%	00	01(1.8)
Guest speakers	01	1.30%	00	01(1.8)

Table-I. Preferred Teaching Methodologies and Gender Distribution (n=77)

Methodology	Mean ± SD	SD	D	N	A	SA
One way lecture	1.40±0.712	54 (70.1%)	17(22.1%)	4 (5.2%)	2(2.6%)	00
Interactive lecture	4.12±0.778	1 (1.3%)	00	13 (16.9%)	38 (49.4%)	25 (32.5%)
Small group discussion	4.26±0.849	2 (2.6%)	00	08 (10.3%)	33 (42.9%)	34 (44.2%)
Guest speaker	3.00±0.960	07 (9.1%)	12 (15.2%)	34 (44.2%)	22 (28.6%)	02 (2.6%)
Student presentation	2.91±1.194	12(15.6%)	17(22.1%)	19(24.7%)	24(31.2%)	5(6.5%)
Lab work	3.73±0.968	2(2.6%)	7(9.1%)	16(20.8%)	37(48.1%)	15(19.5%)
Self study	3.82±0.942	3 (3.9%)	2 (2.6%)	18(23.4%)	37(48.1%)	17 (22.1%)
Demonstration on models	4.29±0.741	00	1(1.3%)	10(13.0%)	32(41.6%)	34(44.2%)
Problem based learning	4.13±0.978	3(3.9%)	00	14(18.2%)	27(35.1%)	33(42.9%)

Table-II. Perception of Medical Students about Teaching Methodologies (Likert Sclae Scoring) n=77

Teaching Methodologies	Positive Perceptions	Negative Perceptions	Suggestions
One-way lecture	Relaxing and stress free for students,	Lenghty , boring, teacher centered, monotonous, no student and teacher interaction, , sleep inducer. taxing for teachers	Frequency should be reduced.Duration should be not more than 40 minutes.
Interactive Lectures	Students particpation, brain storming, interesting, interactive, variety of views, questions and queries answered ,boosts self confidence	Student must be prepared, shiness may discourage students,Interaction creates stress, lenghty discussions waste time	Only interested students who come prepared should participate. Should always be concluded in the end
Small Group Discussions	Everyone participates, effective way to learn,applied knowledge, discussion clears questions and queries, very interesting, students develop close relationship and rapport	Students may create problems for others, students with poor communication skills are at dis advantage	Should be agenda based. Not more than 10 students in group.teacher should manage the group.Every body should participate.
Laboratory work	Learning by experience, real life knowledge, practical knowledge, excellent retension.	Limited topics supplementery method with many limitations.	Clinical skills lab should be established.senior faculty should also be involved
Specimens and models	Visual learning, Conceptual and better learning, active participation, long term retention.	supplementery method with many limitations.Many models / manikins not avaiable	More models and specimens should be provided.
Self study	Easy to focus, active involvement, easy self assessment, maximun concentration.	Requires more time, many distractions, cramming, no guidanace	Some lectures should be replaced by self study
Problem based learning	Generates discussion and mental activity, deep insight and clarity of concepts, interactive, all students participate and attain same level of knowledge,	Time consuming , requires lot of resources, sometimes confusing and misleading	PBL sessions be increased.
Student's presentations	Easy going , stress free for audience, simple topics are easily conveyed, useful if well prepared.	Students are poorly prepared, standards varies with students, inexperience, no discussion.	Students presentations should be included as CPC, followed by discussion by seniors
Guest speakers	Good, speaker is motivating, expert in subject, may convey a great message , gives inspiration	Protocol oriented, passive listening , boring , speaker ignorant of ground realities.	Only very experienced persons should be invited. Topic to be foretold.

Table-VI. Students Perceptions about Teaching Methodologies

DISCUSSION

The educational world is acknowledging the importance of understanding the students' different learning style preferences and their role in attaining academic success.[1]

In our study participants were also asked to show their preferences for teaching strategies. Majority of the medical students chose interactive lectures (22, 28.57%), problem based learning (20, 25.98%) small group discussions (16, 20.78%) as their preferred teaching strategies. Students also gave reasons and comments regarding their liking and disliking of various teaching strategies. Focus group discussion was very useful to know their opinions and perceptions about various methods used by medical teachers in present time in various medical colleges in Pakistan. Students strongly criticised traditional one way lecture still being practiced in many medical colleges. Almost all the students had strong reservations against one way lecture reason being lengthy, boring and teacher centred. Students also disliked it as long lecture discourages students' participation and questions and queries are not appropriately answered. Discussions and comments revealed that students preferred those teaching methods which provide active participation thus making them active learners. In FGD discussion it was learnt that students strongly liked those active learning strategies which not only encourage the *critical thinking* (evaluation, analysis, and interpretation of the information) but also improve the problem solving skills and the decision making thus clarifying their concepts. Students liked interactive lectures, SGD, PBL and DMS. Passive learning formats like one way lectures , guest speakers , student tutorials and self study were mostly ignored and got negative remarks by the majority of the students as they hinder active thinking process thus minimising conceptual and constructivist learning. Our study results are consistent with Costa et al who found that students learn more through interactive lectures and small group discussion.[2] In our study problem based learning was the second most preferred teaching strategy. This finding is similar to a study by Novak and his colleagues who found that pharmacy students learn best through problem-based learning.[3] The least preferred teaching strategy identified by medical students was didactic or one-way lecture. This observation of ours is similar with a study by Mukhtar et al which also showed that didactic lecture was least preferred by the students, however the laboratory work (70%) was the most preferred, followed by problem based learning, and interactive lectures.[4] Students in our study significantly preferred small group discussion (26.08%) and this finding is augmented by another study by Carrier et al.[5] Rehman et al compared the role of new approaches and methods in understanding and learning capabilities of undergraduate medical students. This study concluded that introduction of PBL, case based sessions, students seminar, quizzes and structured assignments significantly improved the conceptual understanding of the students (84%) as compared to students who were taught by traditional methods.[6] Another study done at King Saud University supports our findings where students taught with discipline based traditional curriculum were compared with students having integrated problem-based learning curriculum. Level of satisfaction was 20% with traditional methods of teaching as comapred to 80% with PBL based teaching. Students from both groups strongly liked PBL, clinical skills lab, tutorials, and lectures. [7] Sawatsky in a study at Pittsburgh has concluded that a structured active teaching format when compared with traditional teaching format, significantly improved resident engagement, knowledge and problem solving skills and required minimal resources . The active teaching format offers an exciting alternative to the standard lecture for residents in medicine and being easy to implement.[8]

CONCLUSION

Majority liked interactive lectures (28.57%), problem based learning (25.98%) and small group discussion (20.78%) as their preferred teaching strategies while one way lectures were preferred least. Medical teachers should adopt teaching strategies which have got active participation of students and should employ a variety of modes

of information transfer which are more student centred.

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