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Perceptions of difficulties faced by first-year medical students while learning Physiology at a single Government institute in Kolkata, India

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Abstract: *Introduction:* This study investigated medical students' perception of learning difficulties in Physiology during their first year of study and their study habits to overcome these problems. *Method:* A total of 200 1st year medical students of a Government Medical College in West Bengal, India were surveyed by a pre-validated semi-structured questionnaire that was provided to the 2017-18 batch. *Result:* Among 147 respondents 74 were males and 73 were females. A majority of students considered less time and vast syllabus was the greatest difficulty faced by them in learning Physiology at 1st year (Score 4.7 out of 7 in male and Score 4.3 out of 7 in females.). Stress, anxiety during course was ranked second. 41.89% male and 46.57% female students agreed that following the instructor and taking class notes simultaneously at Physiology Lecture class was the major problem faced by them at lecture classes. Less hands-on activity was pointed out as the major problem at Physiology practical class. Majority of students (93.24% male students and 91.78% female) reported that they take help of different networking sites to improve their knowledge. *Conclusion:* Students' perception of difficulties in learning Physiology at their first year pointed out the need of modification of pre-convinced notion of teaching-learning principles. Curriculum encouraging self-directed learning, andragogic approach, formative assessment and constructive feedback to the students are the need of the day. Faculty members of medical colleges should update themselves accordingly and should modify their teaching mode in more learner-centric pattern.

Keywords: Students' perception, Difficulty in learning Physiology.

Introduction

Students' perception comprises one of the most important ways to strengthen the medical education at content delivery level. It is also required for assortment of effective methodologies for improvement in teaching basic sciences related to clinical professions, such as Physiology in health education. Medical education in India is witnessing a paradigm shift from teacher-centric to student-centric mode since last decade [1]. But students in India enter the medical colleges directly from high school at an average age of 18 years and this school system relies mainly on teacher-based activities, examinations based on regurgitation of memorized information and norm-referenced test to evaluate students [2].

As a result, most of the students attain passive learning habits and for them the sudden transition from the higher secondary school level to medical college becomes difficult and stressful, and many students find it difficult to cope. Moreover, students who come from schools where regional languages (like Hindi, Bengali) are the primary language and English is taught as second language they face huge problem as medical curriculum is taught in English. To overcome these problems of orientation, the Medical Council of India, proposed the introduction of 'Foundation Course' for a period of two months prior to a study of pre-clinical subjects in Phase I MBBS [3]. This period aims to orient student for medical studies.

Medical Council of India also recognises Health for all as a national goal and expects medical training to produce competent 'Physicians of First Contact' towards meeting this goal [4]. For this they proposed curricular

reforms so that the Indian medical graduates match or better the international standards. In the new curricular settings, they emphasized on competency-based learning to acquire core competencies for effectively functioning as a basic doctor. Competency based learning gives more emphasis on clinical competence, skills and new teaching-learning methodologies including andragogic approach are used to teach them.

Every effort which facilitates active learning methods related to demonstration and first- hand experience is encouraged in the new system. Continuous internal assessment and providing constructive feedback are also some of the important features of this curriculum. The practice of self-directed learning is also given importance in order to encourage life-long learning skills of medical graduates. MCI is also organising faculty development programs at different regional centres in order to train the teachers for implementing this modifications in present curriculum.

But very few medical colleges under West Bengal University of Health Sciences, Kolkata follow these proposed changes in there set up. In this study we surveyed first year medical students about the difficulties they faced during their first years and their study habits in order to point out the need of our students and what are the areas where the newer modification of curriculum can be implemented at our institution.

Objectives: The present study was aimed to assess the feedback from the first professional MBBS students regarding

- Problems faced by them in Physiology Lecture Class
- Problems faced by them in Physiology Practical Class
- Problems faced by them before Assessment
- Things they do in order to improve learning
- Suggestions to overcome these problems

Material and Methods

The present study was carried out in the Government Medical College, in West Bengal, a medical teaching institute which is affiliated to the West Bengal University of Health sciences. The study population was entire batch of 1st Prof MBBS students of the session 2017-18, just after they had appeared their first semester examination. A total of 200 students were surveyed by a pre-validated semi-structured questionnaire that was provided to the students of 2017-18 batch.

The questionnaire had four parts. The first section contained general information of the subjects like age, sex, learning medium, residence at urban or rural area etc. In the second section students are presented with the list of 6 common difficulties faced by students and asked to rank them according to the degree of difficulty they faced in their first year, from 1 (most difficult) to 6 (least difficult). One option was kept open as 'others' for any other difficulties faced by the students not listed in the table.

The items were based on the results of the discussion with many groups of medical students from different classes carried out by the author. The third part was divided into questions specifically enquiring about the difficulties faced in the Lecture class, Practical class and before assessment. The fourth part contained questions about their approach and what self-study strategies they attempt to overcome the difficulties (4 items). Students were asked to answer each statement yes or know in this section. Two open-ended questions about any other method and their suggestions to combat the situation were included. All questions were in English.

The students were directed to fill up the questionnaire within a stipulated time (30mins), independently and in unbiased manner, without mentioning their names or roll numbers. The completed sheets were collected and the data was analysed by SPSS software version 17. The results were expressed as percentage.

Results

Among 147 respondents 74 were males (mean age 19.09 ±1 yrs) and 73 were females (mean age 18.65±.71 yrs). The demographic and socieo-economic pattern of the students are depicted in Table 1. 77 % of male and 72.6% female students are from Bengali speaking families. 64.86% of male and 83.56% females have studied in English medium schools. 77%

males and 89% female students grew up in urban areas. 25.67% fathers of male students have post-graduate degrees and that of females are 39.72%. 21.9% mothers of female students are post-graduate and that of males are (10.81%). The percentage of working mothers in males and females are 12.16% and 19.17% respectively. 97.2% males and 90.89% females took MBBS course as per their choice.

Table-1: Socio-demographic characteristics of the study participants (n= 147, Male= 74, Female=73)

Variables	Male(n=74)		Female(n=73)	
Mean Age± SD	**19.09459±1.049056Yrs**		**18.65753 ± 0.711399 Yrs**	
Mother -Tongue	Bengali	57 (77.02%)	Bengali	53 (72.6%)
	Hindi	12 (16.21%)	Hindi	11 (15.06%)
			Urdu	4 (5.47%)
	Urdu	3(4.054%)	Nepali	2 (2.74%)
	Nepali	2 (2.70%)	Telegu	1 (1.36%)
			Tibetan	1 (1.36%)
			Santhali	1 (1.36%)
Medium of study	English	48 (64.86%)	English	61 (83.56%)
	Bengali	23 (31.08%)	Bengali	12 (16.43%)
	Hindi	1 (1.35%)	Hindi	0
	Urdu	2 (2.70%)	Urdu	0
Grew up in urban/rural areas	Urban	57 (77.02%)	Urban	65 (89.04%)
	Rural	17 (22.97%)	Rural	8 (10.95%)
Father's Education	Post-graduate	19 (25.67%)	Post-graduate	29 (39.72%)
	Graduate	34 (45.94%)	Graduate	36 (49.31%)
	Higher Secondary	20 (27.02%)	Higher Secondary	7 (9.58%)
	No answer	1 (1.35%)	No answer	1 (1.36%)
Mother's Education	Post Graduate	8 (10.81%)	Post Graduate	16 (21.91%)
	Graduate	30 (40.54%)	Graduate	34 (46.57%)
	Higher Secondary	36 (48.64%)	Higher Secondary	22 (30.13%)
	No answer	0	No answer	1 (1.36%)
Mother Working/house-wife	Working	9 (12.16%)	Working	14 (19.17%)
	House-wife	65 (87.83%)	House-wife	59 (80.82%)
Residing at	Hostel	27 (36.48%)	Hostel	32 (43.83%)
	Home	30 (40.54%)	Home	34 (46.57%)
	Rental house outside campus	12 (16.21%)	Rental house outside campus	7 (9.58%)
	Paying-guest	5 (6.75%)	Paying guest	0
Joined MBBS course as per choice	Yes	72 (97.29%)	Yes	70 (95.89%)
	No	2	No	3

Assessment of perception

A majority of students considered less time and vast syllabus to be the greatest difficulty faced by them in the first year (Score 4.7 out of 7 in male and Score 4.3 out of 7 in females.). (Figure 1) Stress, anxiety during course was rated second (2.1 in male and 2.4 in female).

Subjects are too hard was ranked third (1.29 in male and 1.39 in female), followed by peer competition (.065 female, .064 male), lack of information (.064 male, .062 female). English language skill (.051 male, .051 female) were the lowest rank items.

Fig-1: Major Difficulties faced in 1st year

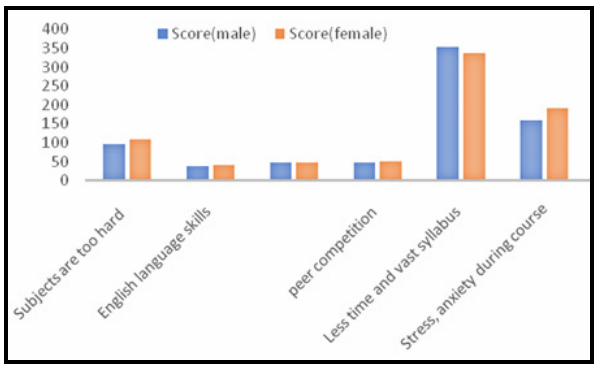


Fig-2: Problems Faced in Lecture class (Male n=74, Female n=73)

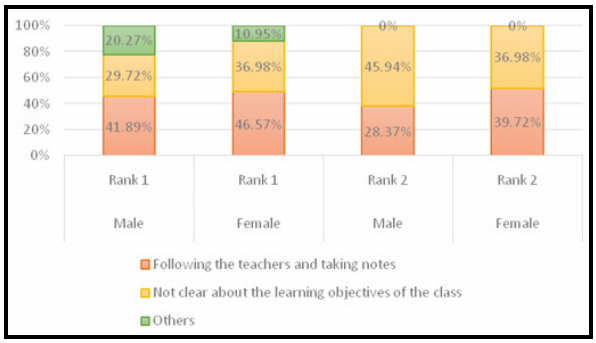
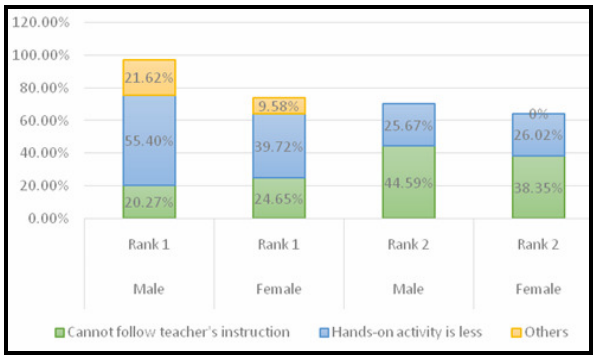


Fig-3: Problems Faced in Practical class (Male n=74, Female n=73)



Regarding problems they faced during lecture class 41.89% male students and 46.57% female students expressed that they had difficulty in following the instructors and taking notes and not clear about the learning objective of the class was ranked second by both male and female students. (Figure 2). In practical classes students identified less hands on activity is the major problem (57% male, 39.72% female) followed by inability to follow teacher's instruction (44.59% male, 38.35% female) which is ranked second (Figure 3). 81.08% of male and 82.19% of female students think Viva-voce exam is more difficult than written exam and difficulty in remembering information is the major problem they face before assessment (85.13% male, 83.56% female). (Figure 4)

Fig-4: Problems Faced before Assessment (Male n=74, Female n=73)

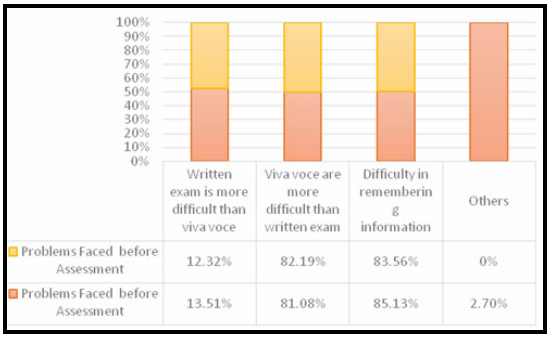
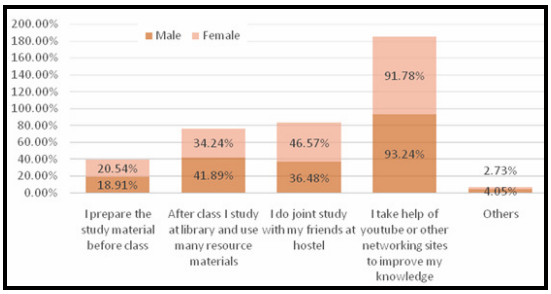


Fig-5: Strategies to improve Learning (Male n=74, Female n=73)



Regarding the strategies that students followed to facilitate their learning 93.24% male students and 91.78% female students reported that they take help of You-tube and other networking sites to improve their knowledge.

The second choice for male was studying at library after class (41.89%) whereas that is for female was doing joint study at hostel with friends (46.57%). Only 18.91% male students and 20.54% female students prefer to prepare study material before class. (Figure 5). Several suggestions were resulted from analysing open ended questions and depicted at Table 2.

Table-2: Questionnaire- Typical Responses to the open- ended questions by Students	
Responses	**Frequency**
About Lectures	
Teaches are too fast, can't catch up the words	5
Teachers speak in local language like Bengali, preferred language is English and Hindi	4
Clear cut routine beforehand and topics to be announced prior classes	3
More interactions, concept-maps	2
Question-answer discussions after finishing each system	1
About Practical classes	
Self -handling of the instruments should be more and clinically irrelevant instruments not to be included in the syllabus	5
More revision classes are required	4
Number of microscopes in each table to be increased in haematology practical class	3
More frequent exams on practical syllabus	2
Number of students in each demonstration groups to be reduced or more teachers to be assigned	1
Assessment	
Continuous assessment should be more frequent preferably weekly	5
Corrected answer sheets to be displayed and feedback to be given	4
Weekly tests to be marks free in order to reduce stress	3
More projects and group activities than exam	2
Dates of exam to be announced at least two weeks beforehand	1
Rating Scale: 1-5, Where 5 = Most frequent and 1 = least frequent	

Discussion

Several major difficulties faced by the 1st Prof. MBBS students are identified in this study. Most of the students pointed out less time and vast syllabus as the major problem followed by stress, anxiety during course as the second cause. This is in agreement with the previous studies which reported very high prevalence of stress among first year MBBS students and academic related problems are the main sources of stress [5-6].

Students found subjects of 1st Prof. MBBS are too hard and choose it as the third most important difficulty they faced in 1st year. This is a new point identified by our students not mentioned by previous studies in this field. Peer competition and lack of information or recourse materials were amongst least important difficulties as pointed by our students in agreement with the previous studies [7]. Lack of fluency in English language was depicted as a major barrier to medical education in several previous studies [8-10] but in our case this was chosen as a least important by students. The reason may be 83.5% of female students and 64.86% of male students of this batch are from English medium schools.

Our students experienced substantial problems in following instructors and taking notes in lecture class. For this the reason attributed to was that the pace of the class is too high (Table 2). The second most important difficulties experience by them was they did not understand the learning objectives of their lectures.

They suggested a clear-cut schedule mentioning topic of the class before-hand for this. This is an interesting finding in our study which will help us to change our approach while taking lecture class. Appropriate lesson planning and clear-cut declaration of learning objective is the need of the day. Students in

our study also demanded more interactive teaching-learning experiences which is highly recommended by Medical Council of India in its new curricular guideline [11]. Significant number of participants opined that hand on activities are less in practical classes and they suggested more laboratory works than demonstration.

Interestingly they pointed out that clinically irrelevant instruments should not to be included in the syllabus. These results are consistent with adult learning [12] as adult learners want their learning to be relevant to their learning goals. This further depicts that we medical teachers need to focus on basic principles of andragogy which is already emphasized by Medical Council of India in new curricular goals [13].

A great number of students think viva-voce is more difficult than written exam. This perception is in agreement with a previous study performed in Bangladesh [11]. The students also expressed that difficulty in remembering information is another important problem faced by them before assessment. In this study after analysing the answers of open -ended questions we found that the students wanted effective and constructive feedback after each assessment in order to improve their learning. This is heartening to see that our students 'observation and demands are again in accordance to the new curricular guideline proposed by Medical Council of India where need of formative assessment and feedback were emphasized.

Another interesting finding in our study was 93.24% of male students and 91.78% of female students prefer to take the help of You-tube and other networking sites to improve their knowledge. These are one of the best examples of self-directed learning. As per MCI the duty of a medical teacher is to uncover the subject and encourage the students to discover it through self-directed learning [4]. A majority of our students did not prepare in advance for their lectures. Not having a clear-cut schedule beforehand as pointed out by students may be a reason for that.

Limitations

There are some limitations in our study. It was carried out in only one medical college of Kolkata, West Bengal. Further studies using multiple centres with a large sample size on the current topic are therefore recommended.

Conclusions

The study elucidated the difficulties faced by first year MBBS students and pointed out the need of changes in the pre-convinced notions of teaching-learning principles on the part of the faculty. It also focuses on the relevance of new competency -based curriculum as proposed by MCI where more emphasis is given on Self-directed learning, inclusion of andragogic technique in the teaching and also the need of constructive feedback to the students. We hope this study will encourage more and more faculty members to undergo revised basic course workshop in Medical Education Technology (MET) by MCI so that they can bring some positive changes in the field of medical education as per the requirement of the students.

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