Determinants Affecting Student's Performance in Teaching Physiology: A retrospective analysis

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ABSTRACT

Background: This was a descriptive cross-sectional study among the students in the department of physiology at Khwaja Yunus Ali Medical College (KYAMC) during the period of December 2019 – January 2020 using a structured questionnaire and a checklist for record review of 1st professional examination results.

Objectives: To find out number of determinants including socio-demographic characteristics affecting student's performance in teaching physiology course in addition to the perceived factors for better performance.

Methods: The data were generated from using a structured questionnaire and a checklist for retrospective record review of 1st professional examination results where the sampling technique was purposive / convenient in nature, the respondents willing to participate. It was analyzed manually & by computer program as appropriate.

Results: In this study among the total 52.57% respondents were male and 47.43% were female where 93.59% were within 20-22 years of age and 97.44% were Muslim by religion. The choice of respondent's profession was by 25.64% parents. Only 47% and 67% respondents had regular exercise & enough sleep habits. Choice of foods in daily diet as fruits & vegetables were found adequate to only 35-50% respondents, and as milk and yogurt to 35-40% only. Listening music, playing games, using internet, capture photos, sending mails & text including sending and receiving calls were the most pattern of cell phone use among 75-98% respondents. Unbiased behavior of teachers, physical environment of class room, library facilities, available books in the library, adequate opportunities for internet & photo copy, and consideration of student's opinion in teaching and learning were identified as perceived factors towards better performance to about 35-65% respondents.

Conclusion: Scope for regular exercise and dietary inclusion of fruits & vegetables needs emphasizing in addition to consumption of milk and yogurt. Opportunities for class room facilities, book in the library, internet & photocopy needs to be created further. Student's opinion in teaching learning process may also be considered towards better academic performance. Unbiased teacher's behavior can be an added input in this direction as well.

Key words: Diet, exercise, behavior, and habits

Introduction

Academic performance of a medical student always attracts the attention of all those who involved in medical education. Stakeholders of medical education are concerned about students' performances as that reflects their various areas of interest. Those stakeholders are not only the faculty members but also medical school selection committees, curriculum planners, and instructional designers as stated by Alfayez et al.[1] Moreover, the students' achievements has always been one of the major goals of education. Many studies are conducted to identify the factors that affect student achievement positively or negatively. Identifying those factors and its correlation is a very complex process. House found that the student characteristics, their

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lifestyle, learning environments as well as instructional activities that contributes to their learning achievement[2]. Crede and Kuncel also found that study skills, study habits, study attitudes, and motivation for study exhibit certain relationships with academic performance[3]. Many studies states that the most important predictor of performance in medical school is both the prior academic ability and English language proficiency.[1–3] In addition in another study the socioeconomic status is one of the factors that affects learning; the author states that the students learn better if they are from an above-average or average income family.[2] Medical school is known to be a stressful branch in higher education that requires a lot of effort to continue. Therefore there is an increase in the incidence of academic and extra-academic stress between medical students. [4] The large amount of information leaves a little time for the medical students to relax and refresh, because of that stress and depression have always been linked to mental and physical issues.[5] As the definition of stress is anything that can disturbs the normal individual's mental or physical wellbeing.[6] Therefore, stress could be beneficial or harmful. The beneficial stress will improve the individual performance, increase achievement and imagination however; the harmful stress will affect individual's general health.[7] "Providing and offering quality education is the priority of the most of the countries".[8] Therefore, it has been widely acknowledged that the educational environment is an important determining factor of an effective curriculum implementation process as there is a strong association between teaching and learning.[9,10] The UK Standing Committee on Postgraduate Education highlighted the importance of educational environment in their statement that reports, an environment that is conducive has a positive and significant impact on students' learning, academic progress, and well-being.[11] It is also accepted that a positive learning environment during undergraduate education can lead to increased satisfaction, achievement and brings success as a practitioner.[12,13] Therefore, educationalists are to provide the highest quality of teaching to their students, considering a prerequisite to create an environment favorable for learning. This improvement can be achieved by identifying the weaknesses in the environment.[14]

Students' perception of the educational environment is a useful basis for modifying and improving its quality. The goals of the medical education curriculum are to produce graduates who have adequate knowledge, sufficient problem solving, communicating, and manipulative skills with ethically sound professional attitudes. The educational environment endeavors to nurture simultaneously two different orientations: one as task-orientation where the emphasis is on complex and diverse scientific tasks and other is the social-emotional orientation where the emphasis is on the development of a caring person of sick people.[15]

Generally students' perception comprises that 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.[16]This study is a modest attempt to explore the determinants affecting student's performance in teaching Physiology course in a private medical college of the country in addition to academic factors as perceived by the respondents towards better performance by taking appropriate actions by the department in deed.

Objectives

To find out number of determinants affecting students performance in teaching physiology course, and also to explore socio-demographic characteristics, personal habits and life styles, type of food intake in daily diet, as well as the pattern & type of cell phone and computer use for academic purpose in addition to perceived factors of the respondents for better performance.

Methodology:

This was a descriptive cross-sectional study for a period of three months among the students in the Department of Physiology at Khwaja Yunus Ali Medical College. The respondents were the students enrolled in 2nd phase on completion of 1stphase examination willing to participate. The period of data collection were from December 2019 – January 2020 using a structured questionnaire and a checklist for record review of 1st professional examination results where the sampling technique was purposive/ convenient in

nature. Data were generated using a structured questionnaire through interview and a checklist for record review. It was analyzed manually & by computer program as appropriate. The presentations of data weremade under section results in the form of tables & graphs as required. Ethical consideration was also covered using a consent form duly approved by the Ethical Review Committee (ERC) of KYAMC.

Results:

In this study among the total number of respondents (78), 52.57% were male and 47.43% were female where 93.59% were within 20-22 years of age. The parent's education level mostly 91.03% was above HSC level and most of them were service (64.10%) and business (26.92%) by occupation. 54% respondents family had 5 and above numbers of members. The respondents 97.44% were Muslim by religion. 33% parents had monthly income 80,000-1 lac BDT above. The choice of respondent's profession was by 25.64% parents and the 1st prof. result was regular to 76.92% respondents (Table-I).

Table I: Distribution of respondents by socio-demographic characteristics. (n = 78)

| Variables	Sub-Variables	Number of respondents	Percentage
Age in years	17-19	2	2.56%
	20-22	73	93.59%
	23+	3	3.85%
Mostly 93.59% respondents were within 20-22 years of age			
Educational level of parents	Illiterate	0	0%
	Primary	0	0%
	Secondary	7	8.97%
	HSC+	71	91.03%
91.03% parents of the respondents education were above HSC level			
Occupation of parents	Service	50	64.10%
	Business	21	26.92%
	Agriculture	0	0%
	House wife	2	2.56%
	Labor	0	0%
	Nothing	5	6.41%
Parent's occupation was mostly service (64.10%) and business (26.92%)			
No. of family numbers	3	8	10.26%
	4	28	35.89%
	5	29	37.18%
	>5	13	16.67%
Almost 54% respondents family had 5 and above members			
Religion	Muslim	76	97.44%
	Hindu	2	2.56%
	Christian	0	0%
	Buddhist	0	0%
Among the respondents 97.44% were Muslim by religion			
Monthly income of parents	20-50,000	34	43.59%
	50+-80,000	18	23.08%
	80+-1 lac	13	16.67%
	1 lac +	13	16.67%
About 33% parents had monthly income from 80000-1 lac BDT above			
Who choose profession	Self	58	74.36%
	Parents	20	25.64%
The choice of respondents profession was by 25.64% parents			
1st Prof. result GPA	Regular	60	76.92%
	Supplementary	18	23.08%

Only 47% and 67% respondent's had regular exercise & enough sleep habits respectively (Fig-1).

Fig 1: Pie chart showing distribution of respondents by positive personal habits   n=78
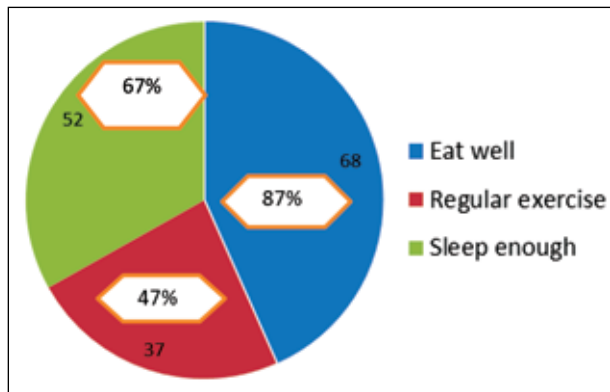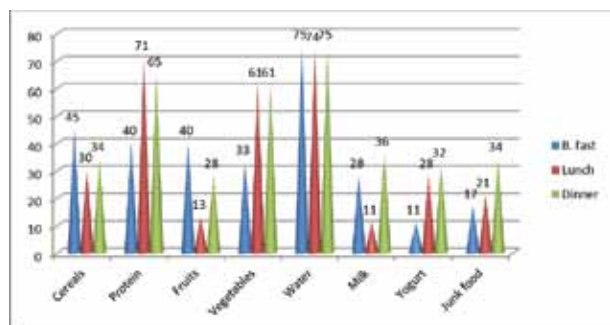

Life styles as involvement of cultural program, maintaining fitness, taking food in time, and escapism were positive to 46.15%, 67.95%, 67.95%, and 23.08% respondents (Fig-2).

Fig 2: Line graph showing distribution of respondents by life styles perceived positive   n= 78
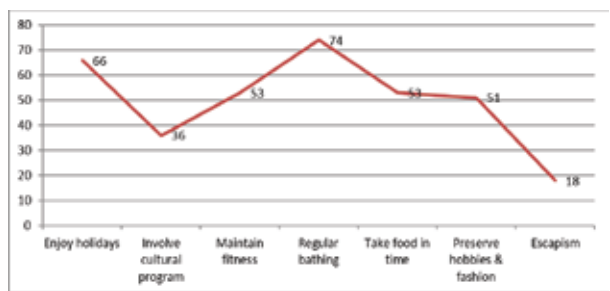

Fig 3: Bar diagram showing distribution of respondents by choice of foods in daily diet   n= 78

Choice of foods in daily diet as fruits & vegetables were found adequate to only 35-50% respondents, and as milk and yogurt to 35-40% However, junk foods were found adequate mostly in lunch and dinner to approximately 20-44% respondents (Fig-3)

Fig 4: Pie diagram showing distribution of respondents by type of cell phone use for academic purpose　　n=78
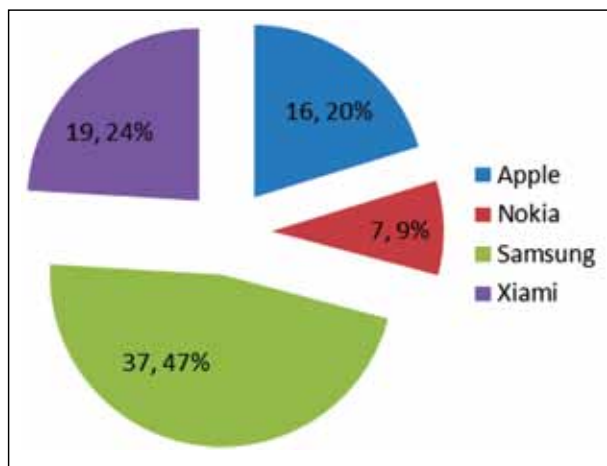
Respondents mostly　47% were in favor of using Samsung cell phone (Fig-4)

Listening music, playing games, using internet, capture photos, sending mails & text including sending and receiving calls were the most pattern of cell phone use among 75-98% respondents (Table-II).

Table II: Distribution of respondents by pattern of cell phone use for academic purpose. (n=78)

Variables	Sub-Variables	Number of respondents	
		Yes	No
Pattern of cell phone use	To send & receive text	77 (98.72)	1 (1.28)
	Allow to place & receive calls	76 (97.44)	2(2.56)
	Sending e. mail	60 (76.92)	18 (23.08)
	Capture photos	74 (94.87)	4 (5.13)
	Enjoying & making videos	55 (70.51)	23 (29.49)
	Access to internet	76 (97.44)	2 (2.56)
	Playing games	58 (74.36)	20 (25.64)
	Listening music	67 (85.89)	11 (14.10)
	GPS (Global Positioning System)	51 (65.38)	27 (34.62)

N:B: Figures in the parenthesis indicate percentage

Unbiased behavior of teachers, physical environment of class room, library facilities, available books in the library, adequate opportunities for internet & photo copy, and consideration of students opinion in teaching and learning were identified as perceived factors towards better performance to about 35-65% respondents (Table-III).

Table –III: Distribution of respondents by level of perceived factors for better performance

　　　　　　　　　　　　(5 points likter scale)

The following statements are on level of perception of the respondents about fertility control. It may Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD).

Statements	SA	A	UD	D	SD
My teaching was according to syllabus	38 (48.72)	36 (46.15)	3 (3.85)	1 (1.28)	0 (0)
My classes held according to class routine	51 (65.38)	24 (30.77)	0 (0)	3 (3.85)	0 (0)
My teachers were knowledgeable on the subject	52 (66.67)	20 (25.64)	4 (5.13)	2 (2.56)	0 (0)
Our teachers student ration were optimum	31 (39.74)	40 (51.28)	3 (3.85)	4 (5.13)	0 (0)
Teachers skills in communication were excellent	31 (39.74)	35 (44.87)	9 (11.54)	3 (3.85)	0 (0)
Teachers cooperation, advise, counseling were much helpful	39 (50)	30 (38.46)	4 (5.13)	3 (3.85)	2 (2.56)
Teachers were having unbiased behavior	35 (44.87)	32 (41.03)	15	5 (6.41)	1 (1.28)
Good teacher student relationship were sound enough	24 (30.77)	46 (58.97)	6 (7.69)	1 (1.28)	1 (1.28)
There were opportunities for extra-curricular activities (sport, cultural, magazine, social welfare)	33 (42.31)	37 (47.44)	3 (3.85)	3 (3.85)	2 (2.56)
There were regular attendance of students in schedule classes	29 (37.18)	35 (44.87)	6 (7.69)	7 (8.97)	1 (1.28)
There were regular attendance of students in formative assessment	23 (29.49)	41 (52.56)	6 (7.69)	8 (10.26)	0 (0)
Physical environment of the class room were comfortable	10 (12.82)	34 (43.59)	9 (11.54)	11 (14.10)	14
Library facilities were inadequate	6 (7.69)	23 (29.49)	11 (14.10)	32 (41.03)	6 (7.69)
Availability of books in the library were inadequate	7 (8.97)	22 (28.21)	14 (17.95)	30 (38.46)	5 (6.41)
There were inadequate opportunities for internet use	33 (42.31)	18 (23.08)	9 (11.54)	15 (19.23)	3 (3.85)
There were inadequate opportunities for photocopy use	12 (15.38)	18 (23.08)	10 (12.82)	32 (41.03)	6 (7.69)
Use of teaching materials by the teachers were inappropriate	4 (5.13)	8 (10.26)	8 (10.26)	45 (57.69)	13
Student's opinions in teaching & learning were considered at interval	13 (16.67)	29 (37.18)	20 (25.64)	13 (16.67)	3 (3.85)

N:B: Figures in the parenthesis indicate percentage

Discussion:

The students' achievements have always been one of the major goals of education. To identify those factors and its correlation is a very complex process. However, this study has considered exploring the determinants affecting student's performance in teaching physiology course in a private medical college at KYAMC, Sirajganj in the country including academic factors as perceived by the respondents. The findings will help taking measures to improve students' performance in the subject

physiology in deed. In a similar study House[2] found that the student characteristics, their lifestyle, learning environments, and well as instructional activities that contributes to their learning achievement. On the other hand, Credé and Kuncel[3] also found that the study skills, study habits, study attitudes, and motivation for learning exhibit certain relationships with academic performance.

This study has the limitations in identifying the load of stress factors affecting students however, study indicates that the beneficial stress will help improving the individual performance apart from the harmful stress that will affect individual's general health.[7]As "Providing and offering quality education is the priority of the most of the countries".[8]

In this study physical environment of class room, library facilities, available books in the library, adequate opportunities for internet & photocopy, and consideration of student's opinion in teaching and learning were identified as perceived factors towards better performance to about 35-65% respondents. It is also accepted that a positive learning environment during undergraduate education can lead to increased satisfaction, achievement and brings success as a practitioner.[12,13] Therefore, to provide the highest quality of teaching to their students, considering a prerequisite to create an environment favorable for learning and this improvement can be achieved by identifying the weaknesses in the environment.[14] Students' perception of the educational environment is a useful basis for modifying and improving its quality. It has also been widely acknowledged that the educational environment is an important determining factor of an effective curriculum implementation process as there is a strong association between teaching and learning.[9,10]An widely exploration of such similar facts in our undergraduate settings in teaching physiology can be a helpful basis towards taking actions in improving students academic performance in this discipline in particular.

Conclusion:

This study identified some physical environmental factors and student's involvement in teaching learning process as the scope for improvement towards better academic performance. Some habits related to diet

and exercise can promote physical & mental abilities in improving academic performance as well. Moreover, unbiased teachers behavior can be improved by appointing better motivated and committed faculties in the department of physiology.

Recommendations:

On the basis of this study finding the recommendations are as follows towards better academic performance:

1. There is a need of improvement in physical environment like; class room facilities, library & books, internet as well as photocopy facilities in the department as well.

2. Facilities for regular exercise as well diet containing adequate amount of fruits & vegetables including milk & yogurt to be ensured

3. More opportunities to be created in using computer for academic purpose by creating computer laboratory having 24 hours access for the students

4. Recruiting teachers having motivation & commitment to teaching with due background in the subject physiology

5. Opportunities for involvement of students in the teaching learning process in their respective phase group

6. A large scale such study can be considered in both public & private medical colleges

Conflict of interest: No conflict of interest

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