Influence of Socio-Demographic Characteristics on Academic Performance of Medical Students

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Abstract

This descriptive cross sectional study was conducted to explore the influence of socio-demographic characteristics on academic performance of medical students. The study period was from July 2015 to June 2016. Total 627 final year MBBS students of 11 (6 government and 5 non-government) medical colleges were selected through convenient sampling technique. A self-administered semi structured questionnaire and an interview schedule were used. Study revealed that family income did not have any influence on the academic performance of medical students. Location of parental stay did not show any influence on students' academic performance. Respondents' previous medium of study had little influence on their academic performance. Students who were regular in passing formative assessment also had better performance in professional examinations. Students who failed in professional examinations mostly failed in oral portions (more than 80%). Father's educational qualification did not have any influence on the performance of students but mother's educational qualification had positive relation on it. Performance of those students who were willing to study MBBS were better than unwilling ones. Respondents who were satisfied with the money provided by the parents/guardians were more regular in passing professional examinations. Many of the findings of this study are aligned with findings of the study conducted by Ali S, Haider Z et al.[1]

Key Words: Influence, Socio-demographic characteristics, Academic performance, Medical students

Introduction

The term "socio-demographic" refers to a group defined by its sociological and demographic characteristics. These characteristics are pertaining to, or characterized by a combination of sociological(related to sociology) and demographic (relating to populations) characteristics. Demographic characteristics can refer to age, sex, and place of residence, religion, educational level and marital status. Sociological characteristics are more objective traits, such as membership in organizations, household status, interests, values and social groups. [2]

A medical student's academic performance attracts the attention of all those involved in medical education. Moreover, the improvement of students' achievements has always been one of the main goals of education. Many studies have stated that the most important predictor of performance in medical school is both prior academic ability and english language proficiency. Socioeconomic status is seen as one of the factors that affect learning; students learn better if they are from an above-average or average income family. [3]

The impact of demographic, socioeconomic and educational patterns on the academic performance is an especially relevant issue in developing countries, where major inequality in the distribution of wealth is a serious social concern.[4]

There has been no study on this issue in Bangladesh till date. So, this study would be an effort to explore relationship between the academic performance of medical students and their socio-demographic. These study outcomes may also help recommend medical student selection criteria, widening entry into medical education and develop modalities to improve medical education in particular.

Methodology

It was a cross-sectional type of descriptive study, conducted in 11 selected government and non-government medical colleges of Bangladesh. Total respondents were 627 conveniently selected final year MBBS students.

Pre tested, self-administered, semi-structured, english questionnaire and interview schedule were used for data collection. Thirty six items were included in the questionnaire and interview schedule included 5 main issues.

Numerical data were processed and analyzed using SPSS software package after proper checking and editing after collection. These data are presented in the form of tables, charts and graphs with necessary descriptions. Qualitative data were presented in descriptive form.

Results

Eighty eight percent respondents had 'Bangla' as their medium of study in HSC level and 12% respondents had 'English' as their medium of study in HSC level (Fig 1).

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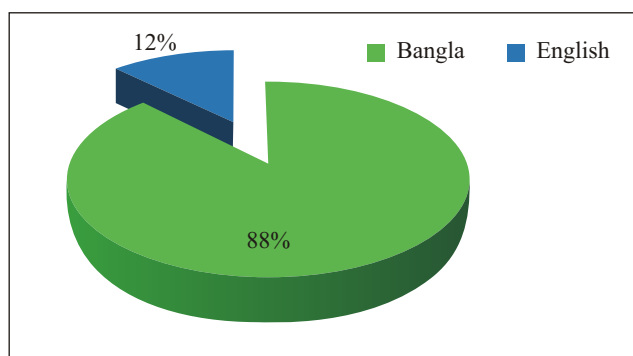
Figure 1. Distribution of respondents by their previous medium of study in HSC

More than eighty one percent respondents of 'Bangla' medium and 90.9% respondents of 'English' medium passed 1st professional examination in the first chance; while 18.9% respondents of 'Bangla' medium and 9.1% respondents passed 1st professional examination with more than one chance (Table 1).

Table 1. Respondents' previous medium of study and regularity in passing 1st professional examination

Medium of study	Chance needed to pass				Total	P value
	1st chance	**2nd** chance	**3rd** chance	**> 3** chance		
Bangla	446 81.1%	98 17.8%	4 .7%	2 .4%	550 100%	
English	70 90.9%	7 9.1%	0 .0%	0 .0%	77 100%	.195
Total	516 82.3%	105 16.7%	4 .6%	2 .3%	627 100%	

Among the respondents 5.6% from Bangla and 13.0% from English medium in HSC obtained positions in the merit list of 1st professional examination under respective universities. There is significant difference in obtaining position in the merit list in professional examination between respondents who had 'Bangla' and 'English' medium in HSC level (Table 2).

Table 2. Distribution of respondents by previous medium of study and position they obtained in 1st professional examination under universities

Medium of study in HSC	Position in 1st professional examination		Total	P value
	Yes	**No**		
Bangla	31 5.6%	519 94.4%	550 100.0%	
English	10 13.0%	67 87.0%	77 100.0%	.125
Total	41 6.5%	586 93.5%	627 100.0%	

Total 554/627 (88.4%) respondents were from urban colleges and only 11.6% were from rural colleges. Among the respondents 71.1% of urban colleges passed 2nd professional examination in 3 years & 6 months. More than seventy two percent respondents from rural college passed 2nd professional examination in 3 years & 6 months (Table 3).

Table 3. Location of the college from where respondents passed HSC and attempts needed to pass professional examinations

Location of college	Duration needed to pass 2nd professional examination		Total	P value
	Y3 yr 6 month	**> 3 yr 6 month**		
Urban	394 71.1%	160 28.9%	554 100.0%	
Rural	53 72.6%	20 27.4%	73 100.0%	.987
Total	447 71.3%	180 28.7%	627 100.0%	

More than ninety percent respondents who passed formative assessment regularly also passed 2nd professional examination at 1st chance and only 8.9% respondents who did not pass formative assessment regularly passed 2nd professional examination at 1st chance. There was statistically significant difference in passing professional examination regularity between respondents who passed formative assessment regularly and respondents who did not pass formative assessment regularly (Table 4).

Table 4. Distribution of respondents by regularity in passing formative assessment and 2nd professional examination

Formative assessment passed regularly	Attempt to pass professional examination				Total	P value
	1st chance	**2nd** chance	**3rd** chance	**> 3** chance		
Yes	444 90.2%	47 9.6%	1 .2%	0 .0%	492 100%	
No	12 8.9%	114 84.4%	6 4.4%	3 2.2%	135 100%	.000
Total	456 72.7%	161 25.7%	7 1.1%	3 .5%	627 100%	

Figure 2 shows the distribution respondents who failed in different portions (written/oral/OSPE or OSCE) in the 2nd professional examination. 81.0% respondents failed in oral, 10.0% failed in written and failure in OSPE/OSCE was 9.0%.

9%   10%

81%
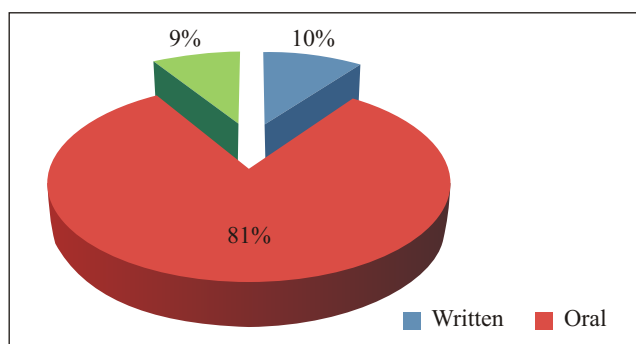
■ Written   ■ Oral

Figure 2. Distribution of respondents who failed in 2nd professional examination by the portion of examination (written/oral/OSPE or OSCE) they failed

Table 5. Distribution of respondents by their family income and regularity in passing professional examination

Family income group	Attempts to pass 1st professional examination				Total	P value
	1st chance	2nd chance	3rd chance	> 3 chance		
Low income (Upto 20000)	81 81.0%	17 17.0%	1 1.0%	1 1.0%	100 100.0%	
Middle income (20001-50000)	268 81.2%	60 18.2%	1 .3%	1 .3%	330 100.0%	.584
High income (Above 50000)	167 84.8%	28 14.2%	2 1.0%	0 .0%	197 100.0%	
Total	516 82.3%	105 16.7%	4 .6%	2 .3%	627 100.0%	

Table 5 depicts 81.0% from low income group, 81.2% from middle income group and 84.8% from high income group passed 1st professional examination regularly.

Table 6. Location of parental stay and total duration required to pass 2nd professional examination

Location of parental stay	Total duration required to pass 2nd professional examination				Total	P value
	3 yr 6 month	4 yr	4 yr 6 month	5 yr or more		
Dhaka city	203 70.7%	70 24.4%	9 3.1%	5 1.7%	287 100.0%	
Divisional town	33 62.3%	19 35.8%	1 1.9%	0 .0%	53 100.0%	
District town	99 70.7%	35 25.0%	6 4.3%	0 .0%	140 100.0%	
Upazila proper	66 77.6%	17 20.0%	2 2.4%	0 .0%	85 100.0%	.586
Below upazila	44 73.3%	15 25.0%	0 .0%	1 1.7%	60 100.0%	
Outside BD	2 100.0%	0 .0%	0 .0%	0 .0%	2 100.0%	
Total	447 71.3%	156 24.9%	18 2.9%	6 1.0%	627 100.0%	

Table 6 shows 77.6%, 73.3%, 70.7% and 62.3% respondents passed professional examination in the 1st chance whose parents were residing at upazila proper, below upazila, Dhaka city & district town and divisional town respectively. There was no statistically significant difference in total duration of passing 2nd professional examination among the respondents whose parents were staying in different locations.

Table 7. Educational qualification of father and regularity in passing professional examinations

Educational qualification of father	Regularity of passing 1st professional examination				Total	P value
	1st chance	2nd chance	3rd chance	> 3 chance		
Illiterate	9 90.0%	1 10.0%	0 .0%	0 .0%	10 100.0%	
Pass V	11 84.6%	1 7.7%	0 .0%	1 7.7%	13 100.0%	
Under SSC	18 81.8%	4 18.2%	0 .0%	0 .0%	22 100.0%	
SSC	22 81.5%	5 18.5%	0 .0%	0 .0%	27 100.0%	
HSC	70 78.7%	19 21.3%	0 .0% 2	0 .0%	89 100.0%	.097
Graduate & equivalent	159 78.3%	42 20.7%	1.0% 2	0 .0%	203 100.0%	
Masters & equivalent	205 86.1%	30 12.6%	.8% 0	1 .4%	238 100.0%	
PhD	18 90.0%	2 10.0%	.0% 0	0 .0%	20 100.0%	
Others	4 80.0%	1 20.0%	100.0 %	0 80.0%	5 20.0%	
Total	516 82.3%	105 16.7%	4 .6%	2 .3%	627 100.0%	

Table 7 shows 90.0% respondents of both illiterate fathers and PhD qualified fathers passed 1st professional examination at the 1st attempt. There was no statistically significant difference in regularity of passing 1st professional examination and educational qualification the respondents' fathers.

Table 8. Educational qualification of mother and regularity in passing professional examinations

Educational qualification of mother	Regularity of passing 1st professional examination				Total	P value
	1st chance	2nd chance	3rd chance	> 3 chance		
Illiterate	10 71.4%	3 21.4%	0 .0%	1 7.1%	14 100.0%	
Pass V	21 91.3%	2 8.7%	0 .0%	0 .0%	23 100.0%	
Under SSC	54 80.6%	13 19.4%	0 .0%	0 .0%	67 100.0%	
SSC	97 85.1%	15 13.2%	2 1.8%	0 .0%	114 100.0%	
HSC	109 79.0%	27 19.6%	2 1.4%	0 .0%	138 100.0%	.029
Graduate & equivalent	129 81.1%	30 18.9%	0 .0%	0 .0%	159 100.0%	
Masters & equivalent	88 86.3%	13 12.7%	0 .0%	1 1.0%	102 100.0%	
PhD	8 80.0%	2 20.0%	0 .0%	0 .0%	10 100.0%	
Total	516 82.3%	105 16.7%	4 .6%	2 .3%	627 100.0%	

Table 8 shows 91.3% respondents who had class V pass mothers and masters & equivalent degree holder mothers passed 1st professional examination at the 1st attempt. There was statistically significant difference in regularity of passing 1st professional examination and the educational qualification of respondents' mothers.

Table 9. Respondents' willingness to study MBBS course and total period required to pass 2nd professional examination

Willingness to study MBBS	Duration required to pass 2nd professional examination				Total	P value
	3 yr 6 month	4 yr	4 yr 6 month	> 4 yr 6 month		
Yes	389 75.0%	115 22.2%	13 2.5%	2 .4%	519 100.0%	
No	58 53.7%	41 38.0%	5 4.6%	4 3.7%	108 100.0%	.000
Total	447 71.3%	156 24.9%	18 2.9%	6 1.0%	627 100.0%	

Table 9 shows 75.0% respondents who were willing and 53.7% respondents who were unwilling to study MBBS passed 2nd professional examination at the shortest possible duration i.e. 3 year 6 month. There was statistically significant difference in total duration of passing 2nd professional examination and the willingness of respondents. Students who were willing to study MBBS took less duration in passing professional examinations.

Table 10. Satisfaction on money provided by parents/guardians to respondents and total duration needed to pass 2nd professional examination

Satisfaction on money provided by parents/ guardians	Duration required to pass 2nd professional examination				Total	P value
	3 yr 6 month	4 yr	4 yr 6 month	> 4 yr 6 month		
Yes	374 73.3%	120 23.5%	13 2.5%	3 .6%	510 100.0%	
No	73 62.4%	36 30.8%	5 4.3%	3 2.6%	117 100.0%	.037
Total	447 71.3%	156 24.9%	18 2.9%	6 1.0%	627 100.0%	

Among the respondents 73.3% who were satisfied with the money provided by their parents/guardians passed 2nd professional examination at the shortest possible duration i.e. 3 year 6 month. Whereas, 62.4% respondents who were unsatisfied with the money provided by their parents/guardians passed 2nd professional examination at the shortest duration. There was statistically significant difference in total duration of passing 2nd professional examination and the money provided by the parents/guardians of respondents. Satisfied respondents were more regular in passing 2nd professional examination.

Discussion

It is a challenge to identify socio-demographic factors that can influence academic performance of medical students. This study was undertaken to explore the influence of socio-demographic characteristics on academic performance among 627 final year MBBS students of 11 selected government and non-government medical colleges of Bangladesh. Data was collected from the respondents using semi-structured self-administered questionnaire. Interview schedule was also used for in-depth interview to probe the obscured issues for selected participants.

We found eighty eight percent respondents had 'Bangla' as their medium of study in HSC level and 12% respondents had 'English' as their medium of study in HSC level. It is more or less consistent with the study conducted by Ali S, Haider Z et al.[1] There is no significant difference in the attempt of passing in 1st professional examination between respondents who had 'Bangla' or 'English' medium in HSC (Table 1). There is significant difference in obtaining position in the merit list of professional examination between respondents who had 'Bangla' and 'English' medium in HSC level (Table 2). Academic performance of graduate students with respect their medium of instruction in school (i.e. English/Urdu) is equal. Another study stated that academic performance of graduate students vary with medium of schooling.[1,5]

Total 88.4% respondents were from urban colleges and only 11.6% were from rural colleges. Findings of this study are more or less consistent with the study conducted by Ali S,

Haider Z et al.[1] where 84% graduate students belong to urban area and 16% belong to rural area of a university. Among the respondents 71.1% from urban and 72.6% respondents from rural (intermediate) colleges passed 2nd professional examination in 3 years & 6 months (Table 3). Findings of this study are consistent to the study conducted by Miller WP, Birch RE et al.[5] where they concluded, on average academic performance of graduate students with respect to their residential area are equal.

Among the respondents who failed in different portions (written/oral/OSPE or OSCE) in the 2nd professional examination, 81.0% respondents failed in oral, 10.0% failed in written and failure in OSPE/OSCE was 9.0% (Fig 2). Maximum failure in oral (81%) in 2nd professional examinations may be due to improper/non-use of structured oral examination system.

Above ninety percent respondents who passed formative assessment regularly also passed 2nd professional examination at 1st chance. Most of the students who regularly passed formative assessment also passed professional examinations regularly (Table 4). Around sixty nine percent teachers agreed/strongly agreed that formative assessment encourage student's deep learning. This study also revealed that formative assessment has got significant effect on summative assessment on various aspects.[6]

Eighty one percent respondents from low income group, 81.2% from middle income group and 84.8% from high income group passed 1st professional examination regularly (Table 5). A Study conducted in India showed no linkage of socio-economic status with academic performance of the students[7] which has similarity with this study. Study of Peter Oyier Ogweno, Nephat et al.[8] concluded that low family earnings did not influence performance of students in agriculture.

Among the respondents 77.6%, 73.3%, 70.7% and 62.3% respondents passed 2nd professional in 3 year 6 months whose parents were residing at upazila proper, below upazila, Dhaka city & district town and of divisional town respectively (Table 6). Findings of this study are consistent to a study which stated that average academic performance of graduate students with respect to their residential area (Urban /Rural) are equal.[5]

Ninety percent respondents of both illiterate and PhD qualified fathers passed 1st professional examination at the 1st attempt. There was no statistically significant difference in regularity of passing 1st professional examination and educational qualification of respondents' fathers. More than ninety one percent respondents who had class V pass mothers and masters & equivalent degree holder mothers passed 1st professional examination at the 1st attempt. There was statistically significant difference in regularity of passing 1st professional examination and the educational qualification of respondents' mothers (Table 7 & 8). There is a positive correlation between level of education of the parents, mother in particular and the students' performance. Parental low levels of education positively influenced students' performance.[8] Findings of this study are consistent with the mentioned study.

Seventy five percent respondents who were willing and 53.7% respondents who were unwilling to study MBBS passed 2nd professional examination at the shortest possible duration i.e. 3 year 6 month. Students who were willing to study MBBS required less duration in passing professional examinations (Table 9). Poor performance of medical students was primarily due to stress, low socio-economic status and their disinterest in studies.[9]

Among the respondents 73.3% who were satisfied with the money provided by their parents/guardians passed 2nd professional examination at the shortest possible duration i.e. 3 year 6 month. Satisfied respondents were more regular in passing 2nd professional examination (Table 10). There is correlation between parents' socio-economic status on students' academic achievement. Poor performance of medical students was primarily due to stress, low socio-also economic status and their disinterest in studies.[9-10]

Conclusion

In this highly competitive world, good academic performance has become a key to student's future. Achieving high academic achievement is one of the most important goals of education. This descriptive cross sectional study investigates the influence of socio-demographic characteristics on academic performance of final year MBBS students of selected medical colleges. The findings of this study suggest that few socio-demographic factors play role in the achievement of good academic performance. The main factors which affect the academic performance of medical students are inadequate proficiency in English language, mother's educational qualification, adequacy of money provided by the parents/guardians to the students and willingness of students to study medical science.

Further research on randomly selected sample using more time and resources in this issue is needed on the basis of which findings can be generalized.

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