Original Article

Preferred Learning Resources of Bangladeshi Medical Undergraduates to understand English Sentences of the Anatomy Textbook: A Comprehensive Analysis

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Abstract

Introduction: The learning style in Anatomy results from a combination of various factors, including culture, gender, and others. The study aimed to explore the helping resources of medical undergraduates of Bangladesh to understand English written in Anatomy textbooks. **Methods:** It was a part of a large cross-sectional analytical study among 114 medical undergraduates in Bangladesh. Participants were selected purposively. The research was carried out in the Department of Anatomy, Bangabandhu Sheikh Mujib Medical University, Dhaka from March 2022 to February 2023. **Results:** The study included 62 female females and 52 males. Multiple response answers results showed 93% of undergraduates preferred YouTube as a helping resource. But in cross-tabulation, the majority (62.9%) of female and (37.1%) male undergraduates liked the teacher's assistance in tutorial classes; followed by 59.8% and 40.2% preferred discussion or group study with peers, and maximum undergraduates did not like other materials like google search or use of dictionary which were significantly associated ($p<0.05$). In multivariate adjusted model, female undergraduates preferred teacher's assistance in tutorial classes 4.4 times more compared to male undergraduates (OR 4.443 ,95% CI 1.534-12.866, $p<0.01$). **Conclusion:** There isn't a single preference by medical undergraduates of Bangladesh to understand and to learn Anatomy. Teachers should focus on a student-centered approach.

Keywords: Bangladeshi Medical Undergraduates; Helping Resources; Anatomy textbook

Introduction

Learning styles are the ways that undergraduates learn and understand information.[1-3] Knowing undergraduates' learning styles can help teachers improve the learning experience because one teaching method does not work for everyone. By identifying these styles, educators can support undergraduates in using their preferred styles while also encouraging them to develop less favored ones.[4] Furthermore, adjusting the curriculum to match undergraduates' preferences can lead to better motivation and performance.[1]

In medical education, undergraduates face various teaching methods, such as lectures, lab work, group discussions, case studies, and bedside teaching.[5,6] The conventional lecture-based approach to medical education is one of the oldest techniques; these methods focus on the teacher, but many institutions are gradually moving away from them in favor of active teaching strategies such as problem-based learning, which encourages undergraduates to take charge of their learning. There is no single teaching strategy that can accommodate all learning styles, making it unsuitable for the learning process.[7] At King Saud University, medical undergraduates who learn best through one method prefer listening, which reflects the teacher-centered and lecture-based approach common in Saudi Arabian high schools.[1]

In Bangladesh, English is the official language of medical education and Anatomy being the beginner and basic subject pushes newcomers first phase Bengali-based medical undergraduates with a great volume of English. Moreover, the complex sentence pattern in Anatomy textbooks may affect students' ability to understand the terminologies.[8] The teaching environment and evaluation methods impact how undergraduates learn and perform.[5,6,9,10] Students originating from a Bangla medium institution tend to initially process English sentences through the lens of their native language before translating them into English.[11] There are various helping

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resources to understand the English. The study aimed to explore the helping resources of medical undergraduates of Bangladesh to understand English written in Anatomy textbooks.

Materials and Methods

Study Design

It was a part of a large cross-sectional study among 114 medical undergraduates in Bangladesh. The research was carried out in the Department of Anatomy, Bangabandhu Sheikh Mujib Medical University, Dhaka from March 2022 to February 2023.

Sampling technique

A convenient sampling technique was used for the selection of medical colleges. Participants of the research were first-phase medical undergraduates who had a Bangla medium background, whose mother tongue was Bangla, and who resided in Bangladesh. The selection of participants were done purposively so that the data includes responses from one government and one non-government medical college. Data were collected through a survey questionnaire.

Construction of the survey questionnaire

In the survey questionnaire, each question had multiple choices to select from. The respondents were asked to pick their choice(s) from the provided list that they consider the best helping resource for understanding English in Anatomy textbooks. Open spaces were also added where the undergraduates could write about any other resource. Bangla translations were given along with the main English version as an aid for the students to understand the questions properly. The survey questionnaire was validated by one medical educationist.

Covariates

Medical undergraduate: In this research, this term was used to define a person who was in the first phase of the medical undergraduate (MBBS) course during the research, under a university in Bangladesh, recognized by the Bangladesh Medical and Dental Council.

Bangla medium: In this research, the term 'Bangla medium' was applied to those premedical educational background of medical undergraduates who have passed the SSC and HSC because under a system of education in Bangladesh that followed the national curriculum and was based upon textbooks written in Bangla.

Statistical Analysis:

All the data were recorded in a pre-designed data collection sheet after checking and cleaning. Statistical analysis was done by using the SPSS (Statistical Package for Social Science) version 25.0. Categorical variables were expressed as frequency and percentage (%). A chi-square test was done to compare categorical variables. The p-value < 0.05 was considered statistically significant at the level of 95% confidence interval (CI). The result was presented in the form of tables and graphs. Multivariate logistic regression analysis was done to find out the odds ratio.

Results

Fig 1: Sex distribution among undergraduates

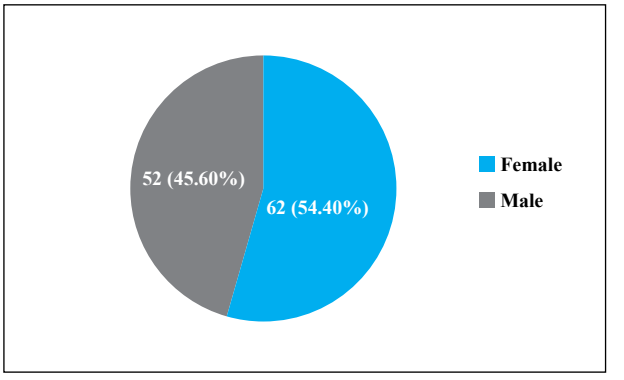
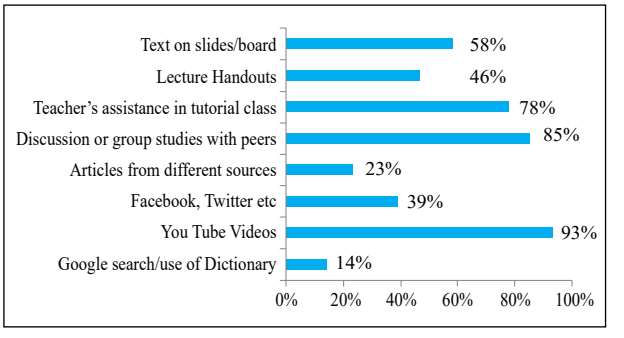


Fig 1 shows the majority of participants (54.4%) were female in this study.

Fig 2: Resource used by female and male first-year medical undergraduates



Multiple responses answers

Fig 2 shows that most of the undergraduates (93%) used YouTube videos primarily as their learning resource. This is followed by discussion or group studies with peers (85%), and teacher's assistance (78%) in the tutorial class. About half of the participants used text on slides or boards in classes and lecture handouts for learning. One-third of them used different social media platforms like Facebook and Twitter. Few undergraduates used Google or a dictionary as learning resources.

Table 1: Helping resources by sex of the medical undergraduate (n=114)

Attributes	Male (n=52)	Female (n=62)	Significance
Texts on slides or board used in classes			
Yes	29 (43.9%)	37 (56.1%)	0.674
No	23 (47.9%)	25 (52.1%)	
Lecture Handouts			
Yes	22 (42.3%)	30 (57.7%)	0.516
No	30 (48.4%)	32 (51.6%)	
Teacher's assistance in tutorial classes			
Yes	33 (37.1%)	56 (62.9%)	0.001*
No	19 (76.0%)	6 (24.0%)	
Discussions or group studies with peers			
Yes	39 (40.2%)	58 (59.8%)	0.006*
No	13 (76.5%)	4 (23.5%)	
Articles available from different sources			
Yes	14 (53.8%)	12 (46.2%)	0.337
No	38 (43.2%)	50 (56.8%)	
Online social media (Facebook, Twitter etc.)			
Yes	23 (52.3%)	21 (47.7%)	0.258
No	29 (41.4%)	41 (58.6%)	
You Tube Videos			
Yes	47 (44.3%)	59 (55.7%)	0.466
No	5 (62.5%)	3 (37.5%)	
Google search or dictionary			
Yes	11 (68.8%)	5 (31.3%)	0.045*
No	41 (41.8%)	57 (58.2%)	

Chi-square test was conducted to obtain the p-value. $p<0.05$ was considered statistically significant. Table 1 shows about 62.9% female and 37.1% male undergraduates liked the teacher's assistance in tutorial classes; followed by 59.8% and 40.2% preferred discussions or group studies with peers and the maximum undergraduates of both sexes did not like other materials like Google search or use of a dictionary. These resources were found statistically significant among undergraduates ($p<0.05$).

Table 2 Multivariate logistic regression analysis of resources usage in female and male first-year medical undergraduates

Attributes	Adjusted OR (95%CI)	Significance
Teacher's assistance in tutorial classes		
No	1	0.006*
Yes	4.443 (1.534-12.866)	
Discussions or group studies with peers		
No	1	0.064
Yes	3.353 (0.933-12.042)	
Google search/Dictionary		
No	1	0.051
Yes	0.303 (0.092-1.004)	

In multivariate-adjusted model, female undergraduates preferred teacher's assistance in tutorial classes 4.4 times more compared to males (OR 4.443 ,95% CI 1.534-12.866, $p<0.01$).

Discussion

Medical undergraduates have varied preferences for study materials and methods, shaped by their stage in education and personal learning styles. Studies show a notable transition from conventional approaches to online resources, especially during exam review periods.

This cross-sectional analytical study included 62 (54.4%) females and 52 (45.6%) males. According to the present study, in multiple response answers, most of the medical undergraduates (93%) preferred to use YouTube as a helping source to understand Anatomy. Similarly, about 98% of medical undergraduates used YouTube videos as online resources by medical undergraduates in another research.[12] Another survey finding reported that both genders were primarily occupied with WhatsApp and Facebook during their free time.[13] Medical undergraduates prefer e-learning tools, particularly for exam preparation, with videos and question banks being the most commonly used resources.[14,15] The major use of YouTube might be due to nowadays there are many educational channels on YouTube, in Bangla language from where one can clear his or her understanding of Anatomy.

In the current study, discussion or group studies with peers were preferred by 85% of the undergraduates as a helping source. About 78% liked to take the teacher's assistance in the tutorial class. Text on slides or board in classes and lecture handouts is used by 50% of medical undergraduates. A survey finding included 123 males (35.5%) and 224 females (64.6%) and revealed that males preferred the lecture handouts given by their instructors.[13]

The present study showed about 39% of the undergraduates mentioned the use of different social media like Facebook and Twitter. Nowadays many anatomists create pages on Facebook for educational purposes. A study showed that undergraduates who performed well on the Facebook pages engaged more deeply in discussions than did lower-performing undergraduates who contributed with a single 'like' or comment.[16] One can share his understanding with others while group study with peers which he or she has understood from Facebook. Twitter also facilitated simple and quick communication between undergraduates and educators.[17]

The present study findings are different in comparison of sex and helping resources. Approximately, 62.9% of female and 37.1% of male undergraduates liked teacher's assistance in tutorial classes ($p<0.05$). Similarly, a study showed that undergraduates engage more with resources that promote the active participation of teachers with undergraduates such as tutorials and group discussions.[18]

The present study also revealed that 59.8% of female and 40.2% males preferred discussions or group studies with peers and maximum undergraduates of both sexes did not like other materials like Google search or the use of dictionaries which were statistically significant among male and female undergraduates ($p<0.05$). Medical undergraduates' peer suggestions have a significant impact on the choice of e-learning resources, often outweighing the influence of faculty.[14] Most medical undergraduates have a preference for multimodal learning styles, showing a strong tendency towards kinesthetic and interactive approaches.[19] Clinical skills laboratories and interactive lectures rank as the top teaching methods, reflecting a preference for hands-on learning opportunities.[19] Peers strongly influence recommendations for study resources, showing how important student networks are in shaping study habits.[20] While more undergraduates are using digital tools, traditional methods are still important in education. The balance between these approaches can vary based on personal preference and the learning environment.

Though watching YouTube videos was the highest percentage by undergraduates as helping resources; in comparative analysis between males and females it was not found in a significant percentage ($p>0.05$). In multivariate-adjusted model, female undergraduates preferred teacher's assistance in tutorial classes 4.4 times more compared to males (OR 4.443, 95% CI 1.534-12.866, $p<0.01$).

The present study points out a fascinating observation that undergraduates nowadays are no longer reliant on dictionaries to comprehend the Anatomy English language.

The main limitations of this study were, firstly it cannot represent all medical college undergraduates of Bangladesh. Secondly, it did not include all phases of undergraduates. It could represent the change in using different helping resources with time. Finally, it was conducted among Bangla medium undergraduates only. The inclusion of medical undergraduates from English medium backgrounds might show a different trend in using various helping resources to understand English in Anatomy textbooks.

Conclusion

Many first-year medical undergraduates still prefer teacher's assistance in tutorial class to understand English written in Anatomy textbooks, even with the availability of smartphones and the internet. However, having more electronic content can improve their learning experience. Medical educators should consider using mixed teaching methods that combine both traditional and digital resources to make Anatomy an easier subject.

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Author contribution

- Conception and design: TR[1], NFA[2]
- Acquisition, analysis and interpretation of data: TR[1], NFA[2], NH[3]
- Manuscript drafting and revising it critically: TR[1], NFA[2], AN[4], YS[5]
- Approval of the final version of the manuscript: TR[1], NFA[2], NH[3], AN[4], YS[5]
- Guarantor accuracy and integrity of the work: TR[1], NFA[2], NH[3], AN[4], YS[5]

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Conflict of Interest

None.

Ethical Approval

The research was approved by institutional review board (IRB), BSMMU (BSMMU/2022/6457, date: 28/6/22).

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