Assessment of Grammar Skills of Bangladeshi Medical Undergraduates in the Context of Understanding English Used in Anatomy

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Abstract

Context: *English is the primary language of instruction in medical curricula worldwide. This study was aimed to assess the 'grammar skills' of Bangladeshi medical undergraduates related to their English comprehension in Anatomy.*

Methods: *A cross sectional study was conducted on two hundred seventy eight 1st year medical students. They attended an English language test following Cambridge English Language Assessment system with 30 questions based on passages from general anatomy, general histology, and general embryology textbooks.*

Results: *The correct response was 62% for the 'grammar skills'. About 29% of the undergraduates appeared to have English proficiency at the 'high', 51% at 'intermediate', and 20% at the 'low' level.*

Conclusion: *More in-depth study on each grammar skill with a larger number of questions can be done in order to create better understanding about the strengths and weaknesses of medical students.*

Keywords: *Anatomy, grammar skills*

Introduction

The primary language of instruction in medical curricula worldwide is English. As a result, the importance of English in medical science has made English proficiency a prerequisite for medical undergraduates' prospects of academic success. However, the high formality of academic text may sometimes be intimidating for the students. This is because 'academic' text, is almost bound to have several features like 'high lexical density' (high proportion of content words to grammar words), 'high nominal style' (actions and events presented as nouns), and 'impersonal construction' (avoiding the use of 'I' and use of passives).[1] In an Anatomy text, it was found that technical words accounted for 37.6% of all word types.[2] However, the rest must then be non-anatomical English.

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The term 'grammar' is quite ambiguous because it has a wide range of separate meanings and different definitions.[3] Again, grammar varies in its coverage; sometimes it is restricted to how words combine into structures of sentences (syntax), but it may also include the internal structure of words (morphology), the possible sound and sound patterns (phonetics), conventional spelling (orthography), meaning of words and sentences (semantics), and the interpretation of utterances in their context (pragmatics).[4] Grammatical ability or grammar skill not only comprises grammatical knowledge but also includes the strategic competence to use the language in language-use situations.[5] Learners need to know the reasons behind the rules because it gives the learner a chance to understand the internal logic of the language.[3] Purpura[5] made an additional point on the importance of grammar stating that 'language teachers today would not deny that grammatical competence is an integral part of communicative language ability'. But, studying grammar as an object itself and devoting too much time to it, is not supported by most language teachers nowadays.[5]

Hossain and Uddin[6] conducted a study to identify the grammatical errors of first-year non-medical undergraduates (English-major) at Jahangirnagar University, Bangladesh, and found that prepositions ranked the first among the grammatical errors; Afrin[7] conducted a study on 89 non-English-major undergraduates of Stamford University, Bangladesh and she addressed difficulties in several areas of grammar, for example, sentence making, spelling, tense, and subject-verb agreement. Hossain et al[8] conducted a study on Bangladeshi medical undergraduates to find out the areas of English that they had difficulties. Among the nine grammatical issues studied, the undergraduates had correct responses below 50% in the case of four issues (Spelling applying the knowledge of British / American style and silent 'e', changing voice, and changing the verb form). The highest percentage of the correct answers was 61% in translating from Bangla to English. The results showed that the undergraduates were facing varying but noticeable amounts of difficulty in many areas of English used in Anatomy.

Given the afore mentioned backdrop, it is clear that medical undergraduates' ability to grasp English has a significant impact on their ability to learn. Research in this area is scarce in Bangladesh, despite its extreme importance. This study aimed to assess the 'grammar skills' of Bangladeshi medical undergraduates related to their English comprehension in Anatomy.

Materials and Methods

It was a cross sectional study where the 'grammar skills' of medical undergraduates were evaluated through an English language test.

Several grammar books were reviewed for getting ideas about the issues of grammar. Definitions, examples, rules, and exercises of grammar books were noted. Language testing documents were also reviewed for getting ideas on the format of questions and issues of grammar to be tested. Cambridge English Language Assessment deals with grammar in the first four parts of its 'Reading and Use of English' section. Handbook for teachers and practice books of the mentioned language test were reviewed and issues of grammar, task types, number of questions, and duration of the test were noted.

Passages from three subdivisions of Anatomy, namely 'General Anatomy', 'General Embryology', and 'General Histology', were chosen for the language test.The passages covering diverse aspects were selected for the exam paper in this study. In addition to that passages were selected considering the issues of grammar contained within the text that were intended to be assessed. One passage was selected from each of the three selected aspects of Anatomy from each textbook (Table I).

The issues of grammar tested was developed from the handbook for teachers, practice books, and handbooks for students of Cambridge English Advanced (CAE). Thirty (30) questions on 17 issues of grammar and four task types (Multiple-choice cloze, open cloze, word formation, key word transformation) were constructed. The instructions to the test-takers (medical undergraduates) for answering the questions remained the same as in CAE; however, Bangla translations were added so that inability to comprehend the question would not impede answering.

Table I

Selection of passages for the exam paper of the English language test for assessing the 'grammar skills'

Subdivision of Anatomy	Textbook	Passage	
		Aspect of anatomy	Topic
General Anatomy	Principles of General Anatomy[9]	Structural descriptions	Lymph capillaries
General Histology	Junqueira's Basic Histology[10]	Figure legend	Hyaline cartilage
General Embryology	Langman's Medical Embryology[11]	Clinical correlates	Neural tube defects

Table II
Issues of grammar* addressed in Cambridge English (Advanced) and the present study

Issue	Part 1		Part 2		Part 3		Part 4	
	C	P	C	P	C	P	C	P
Adverb				√				
Article			√	√				
Auxiliary verb			√	√				
Collocations	√	√		√				
Complementation	√							
Compound					√			
Conditional				√				
Conjunction		√	√	√				
Determiner			√	√				
Fixed phrase	√							
Idiom	√							
Internal change					√	√		
Linker		√	√					
Modal			√	√				√
Modifier			√					
Negative prefix					√			
Phrasal verb	√							
Plural form specific part of a verb					√			
Prefix					√			
Prepositional verb		√						√
Preposition		√	√	√				√
Pronoun			√					
Semantic precision	√							
Suffix					√	√		
Tense								
Verb tense and form			√					
Voice			√					√
Change of parts of speech						√		
Degree of comparison								√
Adjective clause								√

* Issues of grammar were selected mostly from 'Handbook for teachers for exams 2016', Cambridge English Language Assessment (Cambridge English Advanced)[12]; practice tests 'Cambridge English advanced Plus 2 with keys'[13], and grammar book 'High School English Grammar & Composition' by Wren & Martin [14].

C: Issues of grammar tested in Cambridge English Language Assessment (Advanced)

P: Issues of grammar tested in the present study

The first-year medical undergraduates from two selected medical colleges who had participated in the 1ˢᵗ term final exam were given an English language test, which was completed in one sitting. The English language test was preceded by a PowerPoint presentation that explained the format of the exam paper.

In scoring the answer scripts, the scoring system of Cambridge English Language Assessment was followed. The 'grammar skills' scores of medical undergraduates were categorized into different levels of proficiency. Correct, incorrect, and unattempted responses were noted on a total of 278 language exam answer scripts. The scores of each participant were calculated. After entering the data into SPSS version 22, descriptive statistics were used to analyze the information. Calculations were made to determine the frequency and percentage frequency of the correct, incorrect, and unattempted responses.

The study was conducted after getting approval of the Institutional Review Board of Bangabandhu Sheikh Mujib Medical University. An informed written consent was obtained from the medical undergraduates before the conduction of the English language test.

Results

The performance of the undergraduates was measured regarding each grammar issue as frequencies and percentage frequencies of correct, incorrect, and unattempted responses. It was noted that in the case of seven out of nine issues of grammar (voice, conditional, determiner, prepositional verb, degree of comparison of adjective and adjective clause), the percentage frequencies of correct responses were 'high' ($73 \leq$), whereas in case of two issues of grammar (preposition, linker) the percentage frequencies of correct responses were relatively 'low' ($50 <$). Figure 1 shows a visual comparison of performances regarding different issues of grammar (Word formation, Key word transformation, and other issues of grammar) in terms of percentage frequencies of correct responses pointing out the areas of weaknesses and strengths of medical undergraduates. Overall proportions of correct and incorrect responses

regarding 'grammar skills' were 62.3% and 30.6% (Figure 2). The frequency distribution of the scores obtained by the medical undergraduates shows slight skewness to the left, indicating a slightly greater frequency of higher values (Figure 3).

The number of correct responses by each participating medical undergraduate was noted separately for the 'grammar skills'. The score obtained by each medical undergraduate in terms of the number of correct responses (and the marks allotted to each question) was converted to a score out of 10. Based on these scores, the undergraduates were categorized into three 'proficiency levels' in 'grammar skills' concerning English in Anatomy. These were: 'High', 'Intermediate' and 'Low'. The percentage frequencies of medical undergraduates found to have different proficiency levels in 'grammar skills' are shown in Figure 4. The majority of the undergraduates had an 'intermediate' level of proficiency in both types of skill.
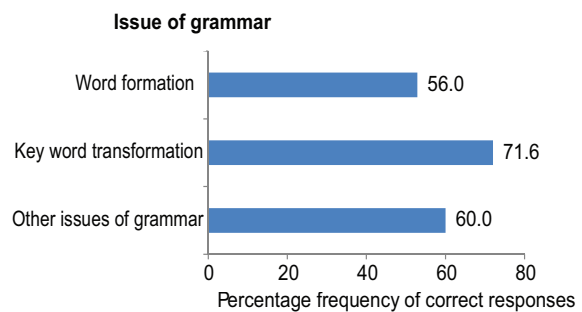

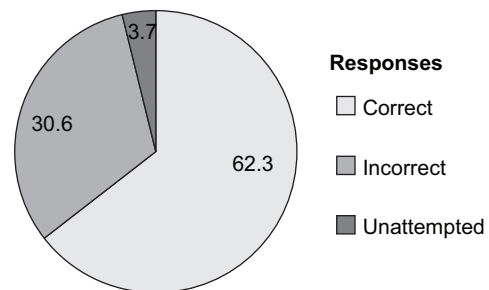**Fig.-1:** *Percentage frequencies of correct responses.*

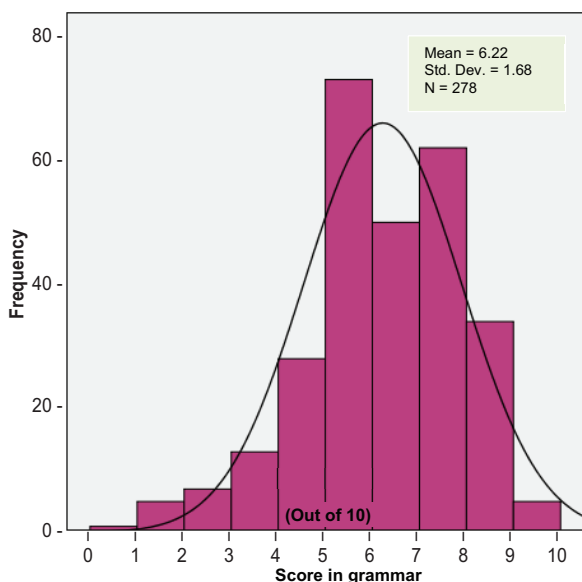**Fig.-2:** *Overall proportions of correct, incorrect, and unattempted responses*

Fig.-3: Frequency distribution of the scores obtained by the medical undergraduates regarding 'grammar skills' in the English language test.

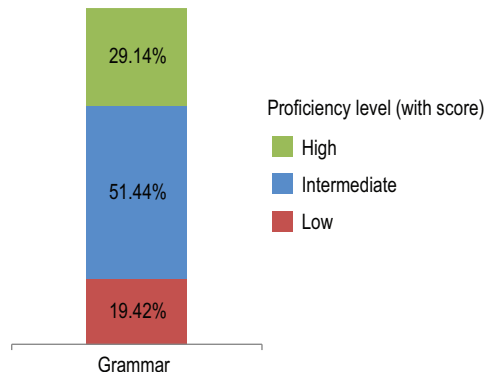**N=** Number of medical undergraduates participating in the test

Fig.-4: *Percentage frequencies of the medical undergraduates found to have different proficiency levels of 'grammar skills'.*

Discussion

For constructing questions for assessing the 'grammar skills', the grammar section of the Cambridge English language assessment was followed, since this was found to be the only language test document among those reviewed for this research where grammar is addressed in the reading section separately. Both vocabulary and grammar are assessed in the form of a multiple-choice 'cloze' test. Questions were constructed utilizing each paragraph of every passage as much as possible.

The participants were chosen for convenience from two government medical institutions in Dhaka. Again, the private medical colleges were not included. Therefore, it is challenging to directly extrapolate the findings of this study to the entire population of Bangladeshi medical undergraduates. The English language test provided valuable insights into the strengths and shortcomings of medical students' comprehension of English in Anatomy.

The overall percentages of correct responses from the undergraduates in the English language test were 62.3% regarding 'grammar skills'. About 56% of the undergraduates answered correctly in 'word formation'. In converting words from verbs to nouns, they performed well. However, the conversion from noun to adjective and adjective to adverb needed improvement. In the case of 'keyword transformation', the percentage of correct responses was 72%, which was a good proportion. So, in terms of flexibility and resources in using the language, the undergraduates performed well. Again, a lack of command of necessary sentence structure was observed by Afrin[7] in a study on Bangladeshi non-medical undergraduates at Stamford University.

The undergraduates' score on different grammar issues was at an 'intermediate' level in the present study. Hossain and Uddin[6] found that first year undergraduates in the Department of English at Jahangirnagar University frequently committed errors in prepositions, articles and auxiliary verbs. Hossain et al[8] pointed out several weaknesses among medical undergraduates, e.g. using appropriate prepositions, spelling, and changing the verb form. Regarding the use of 'preposition', the percentage of correct responses was only 35.1% in the present study. Hossain and Uddin[6] mentioned that prepositions ranked first among the grammatical errors made by secondary level students in their spoken English. Errors of prepositions have also been mentioned by researchers working on other populations in Pakistan[15] and in Jordan[16]. The researchers speculated that different prepositions

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having similar uses might be problematic for undergraduates. The medical undergraduates were also found to be somewhat weak in the use of 'auxiliary verbs' and 'linker' in which percentages of correct responses were 53.5% and 49.6% respectively. In the use of 'voice', the medical undergraduates seem to have performed quite well (71.1% correct answers) in the present research, while an earlier study conducted by Hossain et al[8] on Bangladeshi medical undergraduates found comparatively poorer performance (40.3% correct). In the present research, the questions were objective. On the other hand, in the study by Hossain et al[8], the students had to write a full sentence.

Conclusion

About 62% medical undergraduates answered correctly on the language test for their 'grammar skills' and 50% of them appeared to have English proficiency at 'intermediate' level. More in-depth study on each grammar skill with a larger number of questions may be done in order to create better understanding about the strengths and weaknesses of the medical undergraduates.

References

1. Hyland K. English for academic purposes an advanced resource book. New York: Routledge; 2006.

2. Ferguson, G 2013. 'English for medical purposes', in B Paltridge & S Starfield (eds.), The handbook of English for specific purposes, John Wiley & Sons, Inc, West Sussex.

3. Larsen-Freeman D. Teaching language from grammar to grammaring, Boston: Cengage Learning; 2003.

4. Greenbaum S. English grammar. Cambridge: Cambridge University Press; 1996.

5. Purpura JE. Assessing grammar. Cambridge: Cambridge University Press; 2004.

6. Hossain MD, Uddin MT. An investigation into the errors committed by first year under graduates in the Department of English at Jahangirnagar University. Global Journal of Human Social Science Research. 2015 Mar;15:1-7.

7. Afrin S. Writing problems of non-English major undergraduate students in Bangladesh: An observation. Open journal of social sciences. 2016 Mar 1;4(3):104-15.

8. Hossain S, Shamim KM, Shahana N, Habib MA, Rahman A. Is English as a medium of instruction problem for undergraduate medical students?. Journal of Armed Forces Medical College, Bangladesh. 2010;6(2):32-6.

9. Datta AK. Principles of general anatomy. 6th ed, K. P. Calcutta: Basu Publishing CO; 2013.

10. Mesher AL. Junqueira's basic histology: text & atlas. 12th ed. Singapore: The McGraw-Hill Companies, Inc; 2008.

11. Sadler TW. Langmans' medical embryology, 13th ed. New Delhi: Wolters Kluwer Health; 2015.

12. Cambridge English Language Assessment. Cambridge English advanced handbook for teachers for exams. Cambridge: Cambridge University Press; 2016.

13. Kenny N, Newbrook J. Cambridge English advanced practice tests plus with key. Harlow: Pearson Education Limited; 2014.

14. Wren PC, Martin H. High school English grammar & composition. New Delhi: S.Chand & Company (Pvt.) Ltd; 2016.

15. Akhtar S, Rizwan M. An analysis of preposition (idiomatic phrases, prepositional phrases and zero prepositions) detection errors in the writing of graduate ESL learners of Pakistan. Journal of Literature, Language and Linguistics. 2017;32:24-42.

16. Saed AH, Yassin B. Jordanian Undergraduate Students' Use of English Prepositional Verbs: Analytical Study. Canadian Social Science. 2017;13(4):68-75.