Defeating Challenges in Medical Students' Understanding and Use of Medical Terminology and Vocabulary

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Abstract
This study examined the difficulties encountered by medical students in understanding and using medical English terminology and vocabulary. The study was conducted in 2016 at the Faculty of Medicine, University of Khartoum, and involved 100 third-year medical students. Data were collected through a medical English vocabulary test consisting of six sections designed to assess students' knowledge of pain-related terminology, medical terms related to body organs and diseases, word roots and affixation, medical collocations, grammar, and medical writing conventions. The results showed that students performed well in vocabulary related to body organs affected by diseases, with a mean difference of 3.76. They also demonstrated acceptable knowledge of disease definitions derived from word roots and similarities between medical terms, especially homographs, homophones, suffixes, and prefixes, with a mean difference of 2.39. However, several areas of difficulty were identified. Students showed weak performance in recognizing pain-quality terminology, using medical collocations, applying appropriate grammar, and demonstrating medical writing skills. The lowest performance was recorded in writing-related tasks, including word formation, spelling, abbreviations, terminology use, and punctuation. The study concludes that medical students require stronger support in English for Medical Purposes, particularly in pain terminology, collocations, grammar, and academic medical writing. It recommends the integration of specialized medical English courses, regular vocabulary practice, effective use of medical dictionaries, and writing-focused exercises to improve students' ability to communicate accurately in medical contexts.

Keywords: Medical terminology, medical vocabulary, English for Medical Purposes, word roots, medical dictionary

1. Introduction

Medical terminology refers to the specialized vocabulary used to describe medical concepts, body systems, diseases, procedures, instruments, and treatment processes in a precise and scientific manner. It functions as the language of medicine and enables healthcare professionals to communicate clearly and accurately in clinical, academic, and research settings. Because medical terminology is widely used in patient records, diagnoses, laboratory requests, prescriptions, and professional communication, it is an essential component of medical education.

The structure of medical terminology is largely based on word roots, prefixes, and suffixes. Many medical terms originate from Greek and Latin, and their meanings can often be understood by analyzing their component parts. Although this structure provides a systematic way of learning medical vocabulary, it can also create difficulties for students, especially when terms have similar spelling, pronunciation, or meaning. Medical students may therefore experience problems in pronunciation, grammar, spelling, word formation, collocations, abbreviations, and the correct use of medical terms in written and spoken communication.

Medical terminology has a long historical foundation. Modern Western medicine is commonly traced to the Greek physician Hippocrates, who emphasized observation, diagnosis, and the natural causes of disease. Since then, medical language has developed into a specialized system that allows healthcare providers to describe symptoms, diagnoses, tests, procedures, and equipment with precision. For medical students, mastering this language is necessary not only for academic success but also for effective future clinical practice.

Despite its importance, many students find medical English vocabulary difficult to learn and apply. These difficulties may affect their ability to understand textbooks, follow lectures, write reports, communicate with patients, and participate effectively in clinical training. Therefore, identifying the specific areas in which medical students struggle is important for improving teaching strategies and designing more effective English for Medical Purposes courses.

2. Literature Review

2.1 Definition and Concept of Medical Terminology

Medical terminology consists of words and phrases used in the field of medicine to describe anatomical structures, diseases, procedures, medications, instruments, and clinical conditions. It provides a shared professional language for doctors, nurses, medical students, and other

healthcare workers. A strong command of this terminology helps medical professionals communicate in an accurate, concise, and standardized manner.

Most medical terms are constructed from three main word parts: roots, prefixes, and suffixes. The root usually carries the core meaning of the term, while prefixes and suffixes modify meaning by indicating location, condition, procedure, or disease process. For example, many terms related to inflammation end in "-itis," while terms related to surgical removal often include "-ectomy." Understanding these building blocks enables students to interpret unfamiliar terms more easily.

2.2 Importance of Medical Terminology

Medical terminology is essential in healthcare because it supports efficient and accurate communication. It is used in clinical notes, patient charts, diagnostic reports, prescriptions, laboratory requests, and medical research. A misunderstanding of a medical term may lead to inappropriate communication, wrong interpretation of symptoms, or even clinical error. Therefore, learning medical terminology is not only a linguistic task but also a professional requirement.

For medical students, terminology knowledge is closely connected with reading comprehension, academic writing, clinical reasoning, and patient communication. Students who understand medical vocabulary are better able to read textbooks, interpret lectures, understand case reports, and write clinical summaries. Conversely, weak terminology knowledge may limit academic performance and create difficulties in clinical training.

2.3 Formation of Medical Terms

Although medical terminology may appear complex, many terms are formed through predictable combinations of word parts. Instead of memorizing thousands of isolated terms, students can learn a smaller number of roots, prefixes, and suffixes and then apply them to interpret more complex terminology. This approach can reduce the burden of memorization and improve long-term vocabulary retention.

In addition to word formation, students need to understand medical collocations, which are combinations of words that commonly occur together in medical English. Examples include "general practitioner," "internal medicine," "surgical center," "patient care," and "medical history." Knowledge of collocations helps students use medical English more naturally and accurately in professional communication.

3. Materials and Methods

The study was conducted among 100 third-year medical students at the Faculty of Medicine, University of Khartoum. The participants had already studied several basic and clinical science courses, including anatomy, physiology, biochemistry, microbiology, immunology, pharmacology, community medicine, pathology, patient care, and English language. Their previous academic exposure provided a suitable basis for assessing their understanding of medical English vocabulary.

Data were collected using a medical English vocabulary test consisting of six questions. The test was designed to identify the major difficulties students encounter in understanding and using medical terminology. The questions were based on students' medical syllabus, previous course content, and general medical knowledge. Students were given 90 minutes to complete the test.

Each section of the test measured a different aspect of medical English vocabulary knowledge. Question one focused on the meaning and definitions of pain-quality terminology. Question two examined vocabulary related to body organs and diseases that affect those organs. Question three assessed students' knowledge of disease definitions, word roots, prefixes, suffixes, homographs, and homophones. Question four examined medical collocations and combinations of medical words. Question five tested grammar and sentence structure in medical contexts. Question six assessed medical writing conventions, including spelling, abbreviations, punctuation, word formation, and correct use of medical terms.

The collected data were analyzed using descriptive statistical methods. Mean scores, standard deviations, standard errors, t-test values, significance levels, and mean differences were used to determine areas of strength and weakness in students' performance.

4. Test Analysis and Results

The students completed the vocabulary test, and their responses were marked and analyzed statistically. The results are presented in Table 1.

Table 1: Statistical Results of the Medical English Vocabulary Test

Question	Mean	Std. Deviation	S.E. of Mean	t-test	Sig.	Mean Difference
Question 1	5.51	2.81588	0.28159	1.811	0.073	0.51
Question 2	7.76	0.69805	0.06980	53.864	0.000	3.76
Question 3	4.89	0.49021	0.04902	48.755	0.000	2.39
Question 4	2.78	1.38957	0.13896	-5.181	0.000	-0.72
Question 5	1.79	1.32798	0.13280	-5.346	0.000	-0.71
Question 6	1.50	0.93744	0.09374	-10.667	0.000	-1.00

The results show that students performed best in Question 2, which focused on medical vocabulary related to body organs and diseases. The mean score was 7.76 out of 8, with a mean difference of 3.76 and a statistically significant t-test value. This indicates that students had strong familiarity with terminology connected to anatomy, physiology, and common disease conditions.

Students also performed well in Question 3, which measured their understanding of disease definitions, word roots, prefixes, suffixes, homographs, and homophones. The mean score was 4.89 out of 5, with a mean difference of 2.39. This suggests that students had acceptable knowledge of basic word formation and meaning relationships in medical terminology.

However, the results also reveal several areas of weakness. Question 1, which focused on pain-quality terminology, produced a lower mean difference of 0.51, indicating that students had difficulty recognizing and understanding specific terms used to describe pain. Questions 4, 5, and 6 showed negative mean differences, suggesting weak performance in medical collocations, grammar, and writing. The weakest performance was observed in Question 6, which focused on writing conventions, spelling, abbreviations, punctuation, and word formation.

5. Discussion

5.1 Pain-Quality Terminology

Question one examined students' understanding of words used to describe pain quality. The findings show that students experienced difficulty in recognizing these terms. This is an important concern because pain is one of the most common symptoms reported by patients and is central to medical diagnosis and treatment. Medical students should be able to understand and use terms such as sharp, dull, throbbing, burning, stabbing, and radiating in order to communicate accurately with patients and healthcare professionals.

Weak knowledge of pain terminology may affect history-taking, clinical documentation, and patient management. Therefore, teaching pain-related vocabulary should receive greater attention in medical English courses and clinical communication training.

5.2 Vocabulary Related to Body Organs and Diseases

Question two showed the strongest performance. Students obtained high marks in vocabulary related to body organs and diseases. This result may be explained by the fact that students had already studied relevant courses such as anatomy, physiology, pathology, microbiology, immunology, and basic clinical skills. These courses expose students repeatedly to terminology related to organs and disease conditions.

This finding suggests that medical vocabulary is learned more effectively when it is connected with subject-specific content. Therefore, integrating English vocabulary teaching with medical subject matter may help students retain and apply terminology more successfully.

5.3 Word Roots, Prefixes, Suffixes, Homographs, and Homophones

Question three assessed students' understanding of disease definitions and word formation. The acceptable performance in this section indicates that students had a reasonable ability to interpret medical terms based on roots, prefixes, and suffixes. However, continued practice is still necessary because many medical terms are similar in spelling or pronunciation but differ in meaning. Confusion between such terms can lead to misunderstanding in academic and clinical contexts.

5.4 Medical Collocations

Question four revealed weak performance in medical collocations. Collocations are important because they show how words naturally combine in professional language. A student may know the meaning of individual words but still be unable to use them correctly in common medical expressions. For example, terms such as "general practice," "consulting room," "healthcare provider," "internal medicine," and "surgical center" require familiarity with word combinations rather than isolated vocabulary.

To improve collocation knowledge, students should be encouraged to read medical texts, use specialized medical dictionaries, record common word combinations, and practice using them in sentences and case descriptions. Teaching collocations as part of medical vocabulary instruction can help students write and speak more naturally.

5.5 Grammar in Medical English

Question five showed that students had difficulty with grammar and sentence structure. Grammar is important in medical English because it affects the clarity and accuracy of clinical reports, case histories, and academic assignments. Incorrect verb forms, poor sentence structure, and unclear phrasing may make medical writing difficult to understand.

Medical students should therefore receive more grammar practice within medical contexts. Instead of teaching grammar as isolated rules, instructors can use examples from case reports, patient histories, and clinical descriptions. This approach can help students understand how grammar supports meaning in professional communication.

5.6 Medical Writing Skills

Question six produced the weakest result, showing that medical writing is a major area of difficulty. Students experienced problems with word formation, spelling, abbreviations, medical terms, punctuation, and overall written expression. Medical writing requires accuracy, organization, clarity, and familiarity with discipline-specific conventions. Weak writing skills may affect students' ability to prepare reports, answer examination questions, and communicate professionally.

Improving medical writing requires regular practice, feedback, and exposure to good models of writing. Students should be trained to use medical dictionaries, read medical literature, practice writing short clinical summaries, and revise their writing based on teacher feedback. Writing instruction should be included as a regular component of English for Medical Purposes courses.

6. Conclusion

This study examined the difficulties faced by third-year medical students in understanding and using medical English terminology and vocabulary. The findings show that students had strong knowledge of vocabulary related to body organs and diseases and acceptable knowledge of word roots and disease definitions. However, they experienced notable difficulties in pain-quality terminology, medical collocations, grammar, and medical writing.

The study concludes that medical terminology learning should not be limited to memorizing terms. Students also need to understand how medical words are formed, how terms are used in context, how collocations function, and how medical English is applied in writing and clinical communication. English for Medical Purposes courses should therefore be practical, integrated with medical content, and focused on the real communication needs of medical students.

7. Recommendations

Based on the findings, the study recommends that medical English courses should give greater attention to pain-quality vocabulary, medical collocations, grammar, and writing skills. Medical students should be encouraged to use reliable medical dictionaries and vocabulary notebooks to record roots, prefixes, suffixes, and common medical expressions. Teachers should provide regular exercises on sentence structure, spelling, abbreviations, punctuation, and short medical writing tasks. In addition, medical English instruction should be linked with clinical and subject-based courses so that students can learn terminology in meaningful contexts. Finally, further studies may examine larger groups of medical students

and explore teaching strategies that can improve medical vocabulary and writing performance.

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