

## UNDERSTANDING ETYMOLOGY: AWARENESS AMONG DOCTORS AND A TOOL IN SUCCESSFUL MEDICAL EDUCATION

David A Ebenezer<sup>1\*</sup>, Saravanan Mohanraj<sup>2</sup>

1. Assistant Professor, Department of Anatomy, 2. Associate Professor, Department of Physiology, Velammal Medical College Hospital and Research Institute, Madurai, India.

\*Corresponding author – David A Ebenezer

Email id – [davidebenezer@albert@gmail.com](mailto:davidebenezer@albert@gmail.com)

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### ABSTRACT

**Background:** The language of medicine has been derived from Latin and Greek, and so do many words used in the English language. Knowledge of etymology will aid in better fixation of medical terms if connections are made between words used in English and medicine. For those medical terms that have no parallel in English, the introduction of the new term with etymology will create interest and make learning an enjoyable experience. **Material & methods:** In this cross-sectional study, 214 preclinical medical students were randomly separated into two groups. One group was taught osteology of skull with etymology while the control group was taught the same topic without etymology. After the session questionnaire and feedback forms were administered to the students and evaluated. To find out awareness about etymology among doctors a questionnaire was administered in which 44 doctors took part. **Results:** A strong correlation has been found to exist between teaching with etymology and performance in the evaluation immediately after the class. This group also rated the class to be fun and enjoyable, was able to better recall the terms, spell terms more accurately and was able to better understand the topic. The etymology awareness questionnaire for the doctors brought to light the very poor knowledge that most doctors have regarding medical etymology. **Conclusion:** This study recommends that medical faculty educate themselves on etymology and incorporate it into teaching for an intellectually satisfying class that will with the same stone etch the newly introduced terms in the minds of the student and result in successful learning.

**Keywords:** Medical Education, Medical Etymology, Medical Terminology, Teaching Faculty, Student Success

### INTRODUCTION

The objectives of studying medical etymology according to Stedman's medical dictionary is "to guide the student of medicine to speak more carefully, write more precisely, even coin new words more accurately". The study of the origins of medical terminology can be rewarding fun. Rewarding, because it makes difficult medical terms much easier to learn and retain and at the same time is a hobby that affords much intellectual pleasure and satisfaction. Fun, because many of our words have intriguing, romantic or even humorous origins (1).

The majority of our medical terms stem from Latin and Greek. Indeed it is impossible to appreciate much of the English language itself without some knowledge of these dead languages. In fact, 35% of English words trace their etymology to Latin and Greek (2).

We hypothesized that teaching medical terminology with its etymology will result in better fixation of terms and learning becomes enjoyable. Should this method of teaching prove to have a strong correlation, we want to see if the teaching faculties

in medical colleges are aware of etymology to meet this need.

## MATERIALS AND METHODS

This is a cross-sectional study using both quantitative and qualitative analysis. Participants were 214 preclinical (medical and allied health) students and 44 doctors who are teaching faculty in the capacity of Professors, Associate Professors and Assistant Professors from various departments. It was done in Velammal Medical College Hospital & Research Institute, Madurai, India.

The students were divided into two groups randomly. The duration of the lecture was one hour. The experimental group consisting of 106 students was taught the osteology of the skull wherein new terms were introduced with its etymology. This group was also reminded of ordinary English words that shared a common etymology as that of medical terminology. The control group consisting of 108 students was taught the same topic the classical way without any reference to etymology. For quantitative analysis, both groups were administered a questionnaire with ten questions where they were required to name the part of the skull indicated. For qualitative analysis, both groups were asked to give feedback to rate the class on a scale of zero (very poor) to ten (excellent). They were asked to rate how interesting the class was, were they able to recall new terms, spell new terms correctly and able to understand the topic.

To evaluate the awareness of medical etymology among doctors, a questionnaire containing twenty-five commonly used terms from various disciplines of medicine were listed. The questionnaire was given to more than 50 doctors of which 44 agreed to take part in the study. The participants were required to anonymously give the etymology of the terms. The answer key was set in reference to Stedman's Medical Dictionary.

The questionnaire from the students and doctors were evaluated and statistically analyzed using SPSS version 23 and Microsoft Excel.

## ETHICS

Formal approval from Institutional Ethics Committee was obtained. All the participants gave informed consent.

## RESULTS

The quantitative analysis is given in table 1.

**Table 1: Quantitative analysis of the mean score of two groups**

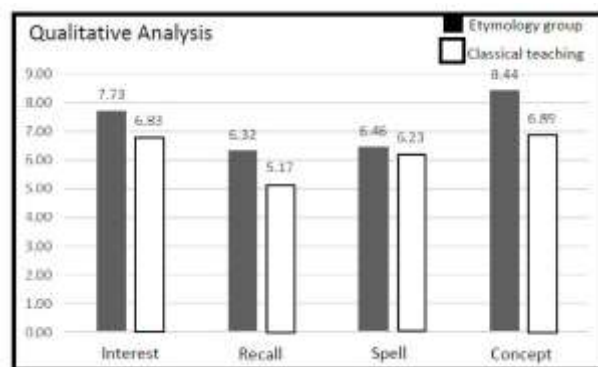
Group	Mark $\pm$ SD (Max = 10)
<b>Etymological teaching</b>	4.09 $\pm$ 2.41
<b>Classical teaching</b>	2.83 $\pm$ 1.88

The mean score obtained by the students through etymological teaching was twice that of the mean score obtained by the students through classical teaching.

Checking the skewness using Microsoft Excel gave a positive value of 0.17 for the etymological teaching group and 0.65 for the classical teaching group. Considering the non-uniformity of the data, a non-parametric comparative test Mann-Whitney U test was applied in the SPSS software.

The Mann-Whitney U test rejected the null hypothesis with a significant level of 0.05. This showed that there is a statistically significant difference between the marks scored by etymology teaching and classical teaching methods.

The qualitative analysis given in Figure 1, shows the mean score given by the students.



**Figure 1: Qualitative analysis of the mean score of two groups**

The maximum mark scored by the doctors in the questionnaire was 40% and the minimum mark scored was 0. The mean mark scored was 11.56% with a median of 8% and mode being 4%. The skewness was 1.7.

## DISCUSSION

It is interesting to know that St. Peter (3) and petroleum (4) which are English words share a common etymology with the petrous part of the temporal bone [G. petra = rock](1). The petrous bone is aptly named as it is the densest bone in the human body. This is in agreement with Mc Minn who states that the “derivations of words are interesting and informative” (5).

According to Kim EB et al “The key to memory is an alteration in the strength of selected synaptic connections. Synaptic conduction can be strengthened or weakened on the basis of experience” (6). So more the connections, stronger the memory. This can be illustrated with the example of the etymology of the word ‘temporary’ [L.tempus= time] (1). The introduction of the term ‘temporal’ [as grey hair starts here] (5) with reference to the word ‘temporary’ will result in stronger memory. Thus etymology is the key to “facilitate memory and promote association with similar derivatives” to help the student to go from what is known to the unknown.

This study confirms our hypothesis that teaching medical terms with etymology is a better tool by both quantitative and qualitative analysis. The results of our study are in agreement with Bujalková M (7) which reports that 70% of students prefer etymological teaching. Hallock R M et al (8) report that 83% of students indicated that etymology helped them better understand the terminology, 73% indicated that it helped them better apply some of the terms. According to Papoulas M and Douvetzemis S “Understanding the root, suffixes, and affixes of Greek terminology leads to an accurate and comprehensive scientific medical language where the word is self-explanatory, reflecting its own eternal semantic.”(9) As medical research progresses the need to coin new scientific terms also arises. Knowledge of etymology will ensure that new terms

are coined with accurate and apt sense. Wulff H R (10) states that “For medical doctors, an appreciation of the history and original meaning of words offers a new dimension to their professional language”. Mehta LA et al (11) states that “Each term carries with it its own history, its own glory”.

## CONCLUSION

Our study brings out the abysmally low knowledge of etymology that medical teachers have in spite of the evidence from our study as well as from many other studies that prove its efficacy. We suggest that awareness should be created in the field of medical education regarding the benefits of etymology. It will bring intellectual satisfaction to the teacher. At the same time, it will result in better fixation of terms, interest in the subject and stronger memory.

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