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Investigating the Effectiveness of Affixes in Learning Medical Terminology among Students of Medicine: A Case Study of College of Medicine, Karary University, Sudan

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Abstract

This study aims to investigate the effectiveness of word affixes in learning medical terminology among students of medicine. An experimental approach was taken for the purposes of this study by the researchers. The data were collected using a design that included a pre-test and a post-test, and they were examined utilizing the T-test and the statistical program SPSS. Students at the College of Medicine, Karary University, Sudan who were in their first year of studying Medicine were the main part of this study. The participants in this study were all in their first year of studying medicine where the English language is a medium of instruction. These students (males and females) their ages between 18 to 20 years old, and the stratified random selection consisted of 110 freshmen participants. The research article sample was randomly selected from two groups of freshmen enrolled in the College of Medicine at Karary University. The randomization of sample selection was based on the accessibility of obtaining consent to participate in the study. In this study, the researchers used a pre-test and a post-test instrument (a test design) which made the classification and investigation of this study possible through a paired Sample T. Test). The study reached several findings such as that word affixes have an effective role in learning medical terminology, exposing medical terminology to medical students using affixes represents an effective way for comprehending these phrases, prefixes and suffixes have a vital role in the formation, comprehension, and interpretation of medical terminology, and the utilization of affixes in acquiring medical language diminishes the complexity of medical courses. The main recommendations of this study comprise: students of medicine should pay attention to the effective role of word affixes in learning medical terminology and somehow it helps them pronounce these terms easily, medical students should practice analyzing medical terminology into its components to comprehend its meaning, comprehending medical language necessitates an acquaintance with common medical roots, prefixes, and suffixes; hence, medical students should engage in the practical study of affixes, medical teachers need to simplify the complexity of medical courses, particularly the terminologies, through the use of affixes, and EFL educators in the medical profession need to develop an introductory course on medical terminology for novice students, primarily focusing on the function of affixes.

1. INTRODUCTION

According to Mohammed et al., (2024), numerous causes exist to support the advantages of learning a foreign language, including business, travel, cultural awareness, internet usage,

hobbies, personal growth, global awareness, friendship, broadening perspectives, scholastic improvement, and additional factors. The demand for acquiring a second language is increasing due to advancements in science and technology, enhanced international interactions, facilitated travel, expanded career options, and increased educational chances. English for Specific Purposes (ESP) seeks to improve language ability in specialized contexts, concentrating on the linguistic abilities necessary for certain fields as mentioned by Ali et al., (2024).

According to Wilkinson et al., (2017), the Oxford Handbook of Clinical Medicine provides a unique resource for medical students and junior doctors as a definitive guide to medicine. It presents clinical information in a clear way that makes it easy to revise, remember, and implement on the ward. It gives reliable advice on what to do, and when and how to do it, with clinical photographs and diagrams that bring theory to life. It weaves history, literature, art, and philosophy into its survey of medicine, casting new light on the specialities and encouraging the reader to see beyond the practical aspects of medicine and adopt a patient-centred approach to care. Learning medical terminology has been a concern of study to many researchers in the field of ESP, medicine. Despite the studies that are directed to a number of medical terminologies still this area has encountered some difficulties in learning these terms. Therefore, in this study, the author is interested in investigating the effectiveness of word affixes in learning medical terminology among students of medicine at the College of Medicine, Karary University, Sudan where English is the medium of instruction. In the syllabus of the English language at the secondary school education in Sudan, there are lessons on word affixes in terms of prefixes and suffixes. However, still, students who join university or college education overlook the importance of affixes in learning medical terminology. Therefore, the author of this study is shedding light on the significant role of affixes in facilitating the learning of medical terminology.

This study has several objectives:

1. Developing medical students' knowledge about the effective role that affixes play in learning medical terminology.
2. Giving medical students the chance to learn more about the effective type of affixes in learning medical terminology.
3. Determining to what extent affixes have effectiveness in learning medical terminology.

There are different research questions to be answered in this study:

1. To what extent medical students' knowledge is well developed in terms of the effective role that affixes play in learning medical terminology?
2. What is the most effective type of affixes in learning medical terminology?
3. If students completed the teaching program of learning affixes, would the results prove significant effectiveness in learning medical terminology?

The researchers assumed some hypotheses in this Study:

1. The extent to which medical students' knowledge of the effective role that affixes play in learning medical terminology is not developed well.
2. The types of prefixes and suffixes are mostly affecting types in learning medical terminology.
3. If the teaching program improved medical students' of learning medical terminology, there would be a statistically substantial disparity between their pre-and post-test results.

Statement of the problem in this study is that students of medicine do not have a well-developed knowledge of the effectiveness of affixes in learning medical terminology. This problem is

noticed by the author during his teaching medical English in different colleges of medicine in Sudan, this case is reflected in several medical students. Moreover, even several graduates of today still lack the knowledge of affixes as an effective means of learning medical terminology. The key reason for conducting this study is to find out more about affixes in learning medical terminology. Regarding the above-mentioned problem, there are many studies concerning learning medical terminology. For example, Osman, (2017) examines the most effective pedagogical approaches for medical terminology acquisition. Also, Ahmed (2018), Investigated EFL Students' Vocabulary Learning Strategies among Medical Students. Consequently, this study is an attempt to consider word affixes in tackling such a problem.

Researchers of this study believe that this study is significant because it highlights the effectiveness that affixes play in facilitating the learning of medical terminology, this study is essential because it can help students of medicine at different levels grasp the nature of affixes in the medical domain. Second, it brings an effective way of learning medical terminology through the role of affixes. In the end, but certainly not least, it is hoped that this body of work will serve as a stepping stone for future investigations on various encyclopedias of word affixes in learning medical terminology.

2. LITERATURE REVIEW AND PREVIOUS STUDIES

2.1. Background

Acquiring medical terminology may initially appear challenging; nevertheless, it becomes more manageable as one familiarizes oneself with the etymology and significance of the terms. The majority of medical terminology originates from Latin and Greek origins. Consequently, it is unessential for medical students to acquire proficiency in these languages to achieve professionalism; rather, they should comprehend medical terminology. So, the most effective way of learning these medical terms according to their origin is by studying and learning word parts in terms of affixes. Medical terminology is the specialized language used by healthcare professionals. Thus, many medical words which are used presently had their origin as early as the time of Hippocrates who was the first expert that practiced medicine. Currently, improvements in technology and recent scientific discoveries in medicine have led to the emergence of numerous new terminologies to encapsulate these innovations. Radiographic terminology, including magnetic resonance imaging (MRI) and ultrasound (US), is now employed to delineate contemporary diagnostic procedures (Barbara A. Gylys &Mary Ellen, 2005; Mansoor, et al, 2023; Lippincott & Wilkins, 2008).

2.2. Medical Terminology

Cohen and Hull (2017) defined medical terminology as a universal language of medicine which facilitates precise communication among medical field professionals worldwide. In addition, medical terminology predominantly comprises affixes. Common terminology in Medical English includes phrases like tiredness and benign, along with many collocations. Lippincott & Wilkins (2008) assert that numerous medical phrases originate from Greek and Latin, indicating that acquiring medical terminology resembles learning a new language. Nonetheless, comprehending medical terminology can be facilitated by analyzing and identifying important components and word relationships. Most medical terminology comprises two or more components. If pupils can accurately interpret each component, they can typically comprehend the fundamental meaning of the term. Consequently, understanding the significance of medical language necessitates familiarity with prevalent medical roots, prefixes, and suffixes. A root constitutes the fundamental element of a term. Numerous medical roots denote an illness,

practice, or anatomical structure. Certain roots manifest at the onset of a word, whereas others occur after a prefix, preceding a suffix, or interposed between a prefix and a suffix. Furthermore, two or more roots can be amalgamated to create a word, as seen in cardiopulmonary and cardiovascular. The letter 'o' is the most often utilized in combining vowels.

Musen et al., (1996) assert that success in the development of problem-solving approaches Nevertheless, it is essential to employ the medical terminology required for the reusable problem-solving methodologies. They assert that it is an opportune moment to reflect on the reasons why medical terminologies are challenging. Consequently, medical students first struggle to pronounce medical terminology due to the origins and complexities of these terminologies. Breaking down medical terminology into its components enhances comprehension. Consequently, a medical terminology curriculum should incorporate an effective technique to enhance students' understanding of English vocabulary for medical purposes (ESP). To achieve this objective, students must employ the concept of judicious selection, specifically, identifying the most effective method for acquiring medical terminology. This study examines the significant significance of affixes in the acquisition of medical terminology.

2.3. Affixes in the English Language

David Crystal (2007) elucidates that in English syntax and morphology, an affixer is a morpheme that can be appended to a base or root to create a new word or a new form of the existing word, typically functioning as either a prefix or suffix. An affix is a sequence of letters typically appended to the beginning or end of a root word, altering its meaning. For example, prefixes such as pre-, re-, and trans- are affixed to the beginnings of words like predict, reactivation, and transaction, whereas suffixes such as -ism, -ate, and -ish are appended to the ends of phrases like socialism, eradication, and childish. In exceptional instances, an affix may be inserted within a word, termed an infix, as exemplified by "cupsful" and "passersby," where the additional "s" affix pluralizes "cupful" and "passerby," therefore altering their structure. Richards and Schmidt (2012) assert that affixes are clusters of letters or sounds (morphemes) appended to a word, altering its meaning or function. Akmajian et al., (2010) assert that affixes in grammar are letters or groups of letters appended to the beginning or end of a word to modify its meaning. Affixes are bound morphemes that cannot exist independently without being linked to other morphemes.

2.4.Types of Affixes

Affixes occur related to their location at the root of a word as the basis for classifying affixes. The following are the different types of affixes: prefixes, suffixes and infixes.

2.4.1. Prefixes

A prefix is a letter or collection of letters affixed to the beginning of a word that partially conveys its meaning, exemplified by "anti-" meaning against, "co-" meaning together, "mis-" meaning wrong or evil, and "trans-" meaning across. Suharni (2017) defines a prefix as an affix positioned at the beginning of a word, which generates a new term with a meaning distinct from the original root. For instance, the term "body" transforms into "antibody" with the prefix "anti," which conveys an opposing sense to "body." The predominant prefixes in English that denote negation are "a-" as in asexual, "in-" as in incapable, and "un-" as in unhappy. The addition of these negations alters the meaning of the words, whereas certain prefixes merely modify the form. The term prefix comprises the prefix pre-, signifying before, and the root

word fix, meaning to attach or position. Consequently, the term itself signifies "to position in advance." Prefixes are bound morphemes, meaning they cannot exist independently. Typically, a sequence of letters that functions as a prefix cannot constitute a standalone word. The addition of a prefix to a word is a prevalent method for creating new words in English.

Table (1) Shows Examples of Prefixes

Prefix	Meaning	Word Examples
bi-	two or double	biannual, bilingual
co-	together with	co-author, coexist, coeducation
ab-	away from	absent, abnormal
hyper-	more than normal	hypertension, hypercritical

2.4.2. Suffixes

A suffix is a letter or set of letters appended to the end of a word or root to form a new word or serve as an inflectional ending. Nandito (2016) asserts that a suffix is an affix appended to the end of a root word, often referred to as a postfix, to fulfil a grammatical role within the word class, whether it be a verb, noun, adjective, or adverb. Consequently, a suffix is termed affirmative as it can alter the form or category of a word. Ndimele (1999) states that a suffix is positioned after the base or root of a word, with two principal categories of suffixes in English. Derivational, exemplified by the addition of "-ly" to an adjective to create an adverb, signifying the word's category. Inflectional, exemplified by the addition of "-s" to a noun to create a plural, indicates the word's grammatical function.

Table (2) Shows Examples of Suffixes

Suffix	Meaning	Word Examples	Word Class
-able	Capable of being; that can be	changeable, comfortable	Adjective
-tion	state of being	education, information	Noun
-ize, ise	to make sterilize	Sterilize, modernize	Verb
-ly	to make more	quickly, effectively	Adverb

2.4.3. Infixes

An infix is an affix inserted within the root of a word. An affix disrupts the continuity of a root. Nevertheless, English lacks significant instances of infixes. Yule (2006) states that an infix is embedded within another word, however, instances are rare in the English language, typically employed in emotional contexts, as exemplified by the term "singabloodypore." Infixes are seldom employed in professional writing but are prevalent in colloquial language or slang. Examples of terms include: Son-in-law Daughter-in-law Father-in-law Individuals like sisters-in-law are commonly accepted as infixes. Infixes are rather rare in the English language, yet they are present in other languages, such as Greek and Philippine languages.

2.5.Affixes in Medical Terminology

The majority of medical terminology consists of two or more components. If each component is interpreted correctly, it will undoubtedly facilitate comprehension of the word's fundamental meaning. Thus, understanding the significance of a medical phrase necessitates familiarity with prevalent medical roots, prefixes, and suffixes, (Lippincott & Wilkins, 2008).

1. Prefix: numerous medical phrases possess a prefix at the commencement of the term that alters the root.

2. Root: Each medical phrase possesses one or many roots that delineate the subject of the term.
3. A suffix is the concluding part of any medical phrase that elucidates a particular facet of the issue.
4. The combining form consists of the assembly of the prefix, root, and suffix to create the medical term.

2.6. Prefixes in Medical Terms

A prefix is positioned at the start of a word and conveys information regarding the manner, reason, location, timing, quantity, frequency, position, direction, or condition. The recognition of numerous prefixes is linked to medical terminology, as they share comparable meanings in standard English. For instance, the fundamental prefix a- signifies without or not in medical language, analogous to its usage in standard English, as in atypical, which denotes not normal. Hemi- denotes half, as in hemisphere. Consequently, prefixes possess a distinct and specialized purpose, which is to elucidate the context of the word's meaning within the medical domain, (Henderson & Dorsey, 2015). Medical terms are daunting at first; they seem like a different language. However, these terms can be familiar in the dissection room in other meanings when breaking medical words into their components. The most useful way is to understand the derivation of keywords, (Edwards, & Juanita 1996).

Table (3) Shows Examples of Prefixes in Medical Terminology

Prefix	Meaning	Word Example
anti-, contra-	against or opposed to	anticoagulant (*against* clotting) contraception (as *opposed* to becoming pregnant)
dys	Abnormal, painful	dysuria (difficulty in passing water or to urinate).
macro-	large or long	large or long macrocyte (*large* cell)
hyper-	above or excessive	hyperglycemia (an excess of blood glucose)
ultra-	beyond or excessive	ultrasonic (pertaining to *beyond* sound)

2.7.Suffixes in Medical Terms

According to Henderson, & Dorsey (2015), a suffix is always positioned at the end of a word and typically denotes a method, condition, or sickness. Nonetheless, the suffix is unequivocal and indicates the condition of a particular physiological component or system. It typically involves either the medical issue or the diagnostic or corrective procedure employed. Suffixes function in the medical domain similarly to their role in ordinary English. Similar to prefixes, several of them possess analogous meanings in colloquial English commonly encountered in ordinary conversation. The suffix –meter denotes an instrument utilized for measurement, analogous to its usage in English (e.g., odometer). Geography, a phrase dreaded by numerous fifth graders globally, concludes in -graphy and signifies, essentially, "depicting lands." A suffix is a morpheme appended to the end of a word that alters its meaning to denote procedures, conditions, or diseases. For example, in the terminologies "tonsillitis" and "tonsillectomy," the suffixes are "/itis/" indicating inflammation, and "/ectomy/" signifying excision or removal, respectively. Both prefixes and suffixes can alter the meaning of a word. Occasionally, both can alter the pronunciation of the medical term, e.g., gnath/o = prognathous. Furthermore, they can alter the grammatical function of a word, for example, "inhale" (verb) becomes "inhaler" (noun).

Table (4) Shows Examples of Suffixes in Medical Terminology

Suffix	Meaning	Word Example
algia	Pain	cephalgia (pain in the head headache)
algia	Pain	cephalgia (pain in the head headache)
rrhea	discharge	rhinorrhea (running discharge from nose).
oma	Tumour	carcinoma (cancer tumor)
ology	Study of	cytology (the study of cells)
itis	inflammation	hepatitis (inflammation of the liver)

2.8. Simplified Meaning of Medical Terms

The principal syllable of most medical phrases is the word root or the fundamental component of a word. A medical term may occasionally consist of compound words. A compound word may comprise two-word roots, exemplified as collarbone (collar + bone). A combining vowel is inserted between word roots to aid in pronunciation. A considerable quantity of medical terminology employs the vowel "o". It is important to notice that "o" is merely a conjunction that does not alter the meaning of the phrase.

Table (5) Shows examples of roots and combining forms.

Word Root	Combining Vowel		Combining Form	Meaning	Use in a Word
acr	+	o	acr/o	extremity	acrocyanosis
psych	+	o	psych/o	mind	psychology
chol	+	e	chol/e	bile	cholesterase

The medical lexicon is predominantly borrowed from Greek and Latin. Terminology in medicine functions as a global language, and it is essential for constructing the components of most medical terms, which consist of the word root, or the main foundation of a word. A terminology in medicine may occasionally consist of compound words. A compound word may comprise two-word roots, exemplified as collarbone (collar + bone). A combining vowel is inserted between word roots to aid in pronunciation. A substantial portion of medical terminology uses the vowel "o" to connect two or more phrases into a single terminology.

2.9.Word Part Analysis

Learning words can be maximized by studying word families instead of individual words. Words may have the same base or root (e.g., *examine*) but take different endings: *examine, examines, examining, examined* (inflexions) (Allen, 1993; Carter, 1998; Nation, 2001). English uses affixes to make new words out of the root. It is well recognized that the majority of medical terminology originates from languages such as Greek or Latin. The term arthritis derives from the Greek word arthron (joint) combined with the suffix -itis (inflammation of). Students will not be required to commit extensive lists of terminology to memory. Instead, they will comprehend the significance of specific prefixes, suffixes, and roots that constitute the fundamental components of prevalent medical terminology associated with the diagnosis and treatment of cancer. Their understanding of these word components and their combinations to create prevalent medical phrases should render even the most complex medical language comprehensible. Furthermore, the addition of affixes has a grammatical function and produces distinct meanings from the root, such as view, viewer, and interviewer (derivatives). Utilizing word families allows learners to examine a term's derivations, equipping them to infer the derivatives of a new word upon its introduction. Certain studies, such as those by Bauer and Nation (1993), validate the prevalent occurrence of derivational affixes, hence rendering the

acquisition of word components advantageous from a cost-benefit perspective. Nation (2001) asserts that understanding affixes and roots provides two advantages for English learners: it aids in acquiring unfamiliar words by connecting them to known terms or recognizing prefixes and suffixes, and it serves as a method for verifying whether an unfamiliar word has been accurately inferred from context. The effective application of word part analysis as a strategy for deducing unfamiliar phrases may facilitate the acquisition of numerous medical vocabulary, encompassing both high-frequency and low-frequency terms, particularly academic lexicon.

2.9.1. Word Parts

Medical terminology is constructed from component elements. The components of words include prefixes, word roots, suffixes, and combining form vowels. A word root paired with a combining vowel is termed a combining form:

a. word fragment at the initial position of the terminology that modifies meaning.
b. word part at the end of the term that changes the foundational meaning or class of a word.
c. a word root with a combining form vowel.

2.9.2. Examples

1. Osteoarthritis (Oste/o/arthr/it is) which means inflammation of bone and joint.

a. oste/o is a combining form that means bone

b. arthr/o is a combining form that means joint

c. -itis is a suffix that means inflammation

2. Intravenous

a. Intra/ven/ous – peculiar to within a vein.

b. Intra- is a prefix that means within

c. ven/o – is a combining form that means vein

d. -ous is a suffix that means pertaining to.

2.10. Interpreting Medical Terminologies

The following is an interpretation of medical terms taken from the examples which are illustrated by Nijris, (2021).

Firstly, the term which needs to be translated is 'gastroenterology' then the term will be divided into its word parts such as:

1. gastr / o / enter / o / logy
2. gastr = stomach
3. o = combining vowel, no meaning
4. enter = small intestine
5. o = combining vowel, no meaning
6. logy = study of

Combine the meanings of the word parts study of the stomach and small intestine.

2.11. Previous Studies

Osman, (2017) conducted a study at the University of Khartoum, Sudan titled: "investigating the Optimal Teaching and Learning Strategies for Medical Terminologies in the Faculties of

Medicine, Sudan," the fundamental purpose of her study is to elucidate novel teaching strategies employed by medical students to enhance their medical English vocabulary. The study sample consists of 100 participants from different colleges to enhance medical vocabulary. The study findings indicated that medical students require many techniques to learn medical language, suggesting they encounter difficulties in this area. Whereas, the author of this study decided to use the experimental method with the design of tests in which the participants have a pretest and posttest. According to the findings, the effectiveness of affixes leads to a significant rise in students' levels of learning medical terminology. The results of the current investigation served as a foundation for the formation of a set of recommendations, one of which was that students of medicine should be aware of the effectiveness of affixes that contribute to better learning of medical terminology. Therefore, the author agrees with Osman's study in terms of the overall structure of the research topic and the problem of the study. However, the author disagrees with Osman in terms of the methodologies that are utilized for the collection of data as well as the dependent and independent variables that are being explored in the study.

AL-Jawadi and Safwat (2022) conducted the study along the same lines as this study, and she titled their study "The importance of word affixes in medical terms." At the University of Mosul, Iraq, they were interested in finding out whether or not the utilization of affixes indicates the general role of affixes in altering the meaning, pronunciation, or grammatical functions of medical terminology. As part of the quantitative strategy for gathering data for this study, the researchers made use of a test that was administered in a total of three separate sessions, regarding the teaching program to the experimental group. In light of these findings, the study suggests implementing and perfecting a more systematic technique for the assignment of affixes. The purpose of this study, on the other hand, is to determine whether or not the usage of affixes by students affects their learning of medical terminology. There are some similarities between the two investigations; however, the methods used to acquire data and the people polled were different in each study. There are also some similarities between the two investigations.

3. METHODOLOGY AND POPULATION

An experimental approach was taken for the purposes of this study by the researchers. The data were collected using a design that included a pre-test and a post-test, and they were examined utilizing the T-test and the statistical program SPSS. Students at the College of Medicine, Karary University, Sudan who were in their first year of studying Medicine were the main part of this study. The participants in this study are all in their first year of studying medicine where the English language is a medium of instruction. These individuals (males and females) their ages between 18 to 20 years old, and they have made up their minds to attend Karary University to study medicine. The place in which the stratified random selection was made. The sample consisted of 110 freshmen participants. The study sample was randomly chosen from two groups of freshmen at the College of Medicine, Karary University. The randomization of sample selection was contingent upon the feasibility of getting consent for participation in the study. Those participants were students who were taking classes in the English language besides their major. The first lecture on medical terminology which serves as the primary source material for this investigation was initially viewed by all of the participants, including those who were assigned to the control group. The author used a methodology that consisted of a pre-test, an intervention program in terms of teaching the experimental group, and a post-test. The program of teaching was about one month of teaching the main two types of affixes (prefixes and suffixes) with their usages in general and particularly in medical terminology. Moreover, the trained group

was tested twice, once before the teaching program at the same time with a control group and the other after the teaching program. Then the whole data were gathered, evaluated, and interpreted statistically. The researchers contrasted ed the outcomes of the experimental group's participation to the results of the control group's participation using the two procedures. This study was limited to students of medicine at Karary University and the duration of time was about six months from May up to November in the year 2024.

3.1.Validity and Reliability

The value of the test's validity is 0.85, which indicates that the test has a high level of validity since the stages of this study are more consistent in relation to the hypothesis of the research article and indicate that the test possesses a high degree of validity. The dependability may be shown in (0.73) As a result, this reliability coefficient is strong, and the stability of the scale and the validity of the research are both shown by its presence.

$$\text{Reliability coefficient} = \frac{n}{N-1} * \frac{1 - \text{Total variations questions}}{\text{variation college grades}}$$

The analysis of the data and subsequent discussion.

4. DATA ANALYSIS, DISCUSSION AND RESULTS

The use of both pretest and posttest design which included in this study enabled the researchers to collect quantifiable data from the members in both groups. The discussions and interpretations of results were organized to answer the study questions and to validate the hypotheses practically. The following are the tables that show the statistically analysed data and discussion of the three hypotheses**.**

Table (1), the findings of the t-test performed on the control group and the experimental group before the training of the experimental group (pretest) are presented as:

Value	No	Mean	Std.Deviation	T	Df	Sig.(2-tailed)	Scale
Experimental Group	55	54.22	10.921	1.312	44	0.19	Insignificant
Control Group	55	51.69	10.518				

Since the calculated value in Table (1) of the T-test of (1.312) and a standard deviation of 0.08 indicate statistically significant variations in the sample sizes of the two groups (0.19), and since this value is greater than the level of significance value (5%), it can be decided that there were essentially no obvious distinctions between the results of the two groups in the general test of affixes. At this point of the test (the pretest), therefore, it is observed that the scores obtained by the two groups of participants do not differ significantly from one another, as indicated by the table above. After that, the results of these groups were interpreted as follows: (The experimental group had a mean of 54.22 and a standard deviation of 10.921, whereas the control group had a mean of 51.69 and a standard deviation of 10.518) It would indicate that the experimental group and the control group knowledge about the effective role that affixes play in learning medical terminology is not developed well. As a result, the first hypothesis can be accepted.

Table (2) T-test results for the prefixes and suffixes test between the control and experimental groups, taken before the academic support program for the experimental group was applied.

Value	Mean	Std.Deviation	T	Df	Sig.(2-tail	Scale

Experimental Group prefixes and suffixes test	23.82	6.191	-1.889	44	0.00	significant
Control Group prefixes and suffixes test	26.22	7.242				

Affixes test (prefixes and suffixes test), the t-test value of (-1.889) indicated statistically significant differences between the two groups (0.000). This number is below the threshold of statistical significance (5%) which shows that the first hypothesis is not accurate. These are references to the fact that there is a marginal statistical discrepancy between the test group and the control group in the section before the prefixes and suffixes test. On the other hand, this distinction is no longer regarded, unless this group (the control) is going to be tested once more in the post-test after the teaching support program has been completed for the experimental group, the test contents are prefixes and suffixes types. Anyway, the first hypothesis must be correct. As a result of this inquiry, the answer that can be arrived at to the first question that was stated as if students of medicine get knowledge of affixes it leads to an effective way of learning medical terminology. As a consequence of this finding, the outcome of the hypothesis' approval or disapproval is based on the level of knowledge that students of medicine possess about the types and classification of affixes that play in learning medical terminology. This hypothesis was put to the test by first giving the participants a practice test that consisted of twenty questions, each of which was worth two points if it was answered properly. The purpose of this exercise was to determine whether or not the hypothesis was true. After that, the results of the responders' marks on the test were computed, and after comparing the means of the experimental group with those of the control group, it was discovered that the scores of both groups in the pre-test were not significantly different, as demonstrated in the table above. This conclusion was reached after comparing the means of both groups. As a consequence of this, it is easy to reach the conclusion that the two groups have the same level of background knowledge about affixes in learning medical vocabulary. Bearing in mind that, the first hypothesis is confirmed.

The first hypothesis was validated by the researchers by having the marks of the test that was taken by students of medicine from two different groups (the control group and the experimental group) to determine whether the students were aware of the effectiveness of affixes in learning medical terminology or not. This was done to validate the first hypothesis. As a significance of this, the findings of the statistical analysis, which are presented at the very top of Table (2), have shown an insignificant value of (0.000), which indicates that medical students' knowledge about affixes in learning medical terminology is not developed to the point where they can extract the components of a medical term through the categories of prefixes and suffixes. Consequently, the second hypothesis will be thoroughly tested after having the post-test to the experimental group.

Table (3) Results of a t-test comparing the experimental and control groups after the experimental group received the teaching program (post-test).

Value	**No**	**Mean**	**Std.Deviatio**	**T**	**Df**	**Sig.(2-tailed)**	**Scale**
Experimental	55	69.80	10.541	8.796	44	0.00	significant

Control	55	51.69	11.291

The significance of the discrepancies between the study's participants on the post-test can be gathered from the value of the t-test that is displayed in the table (3). Regardless of this, the value of the test was 8.796, and it had a significant value of 0.00, which is significantly less than the onset of substantial value that was set at 5%. This refers to the fact that there are statistical differences for the group that was experimented on. At this point, it is important to point out that the post-test results of the experimental group showed a considerable improvement as a direct result of the academic support of teaching affixes which indicates that the teaching of the prefixes and suffixes has a great effect on learning medical terminology. Accordingly, this serves positively the second hypothesis.

Table (4) Comparison of the results of the trained (experimental) group with the untrained (control) group on a multiple-choice test using a T-test.

Value	Mean	Std.Deviation	T	Df	Sig.(2-tailed)	Scale
Experimental post- multiple choice	34.76	7.100	6.503	44	0.00	significant
Control post- multiple choice	26.22	7.242				

The value of the t-test in Table (4) has been quantified to symbolize the disparities between the numbers of participants in the second portion of the posttest, which was (6.503), with a signify value of (0.000), which is inferior to the threshold of substantial value (5%). These statements pertain to the fact that there exists a statistically significant disparity between the control group and the experimental group in terms of the post-multiple-choice test. As a consequence of this, this study has demonstrated that the training program on the affixes led to an improvement in the scores that learners obtained on this subject. As a result, the response to the third question that was given is correct. Providing Evidence for the Correctness of the Third Hypothesis

In order to confirm this hypothesis, the researchers have scored the two parts of the post-test that were administered to the experimental group for compliance with substantial statistical disparities that existed between the pre-test scores and the post-test scores that were obtained by the group that had been subjected to the academic support program. The group's pre-test scores and post-test scores have been analyzed in order to search for these statistically significant differences. The outcomes of the statistical analysis, which are provided in Table (4), have as a consequence indicated a considerable value of (0.000), which is considerably less than the level of significance that was established at (5%). It is possible to draw the conclusion, given these findings, that there were differences in the levels at which the experimental group performed on the post-test. These differences were statistically significant. As a consequence of this, the third hypothesis of this inquiry has been successfully tested, and the findings of those tests have demonstrated that the hypothesis is correct.

To calculate **Cohen's d** for the difference between the size effects of the two means of the two groups using the following steps:

Mean Difference

Difference = 34.76 – 26.22 = 8.54

Effect Size: d = 8.54 ÷ 717= 1.19

Therefore, **Cohen's d** of 1.19 is considered a large size effect indicating a significant difference between the two means related to the data in Table (4).

5. CONCLUSION

The purpose of this research is to investigate whether or not students of Medicine to whom English is the language of instruction are knowledgeable of the role that affixes play in learning medical terminology. The researchers of the study hypothesized that the primary cause of medical students is their lack of knowledge regarding the effective function that affixes play in the process of learning medical terminology. Therefore, the objective of this study is to ascertain whether or not an increased knowledge of affix indicators by medical students corresponds with the effectiveness of affixes in learning medical terminologies.

To conduct this study, the questions that were posed have been recast as speculative claims. To begin, instructing students of medicine about prefixes and suffixes helps boost those students' ability to learn medical terminology. This hypothesis was put to the test by those whose first language is not English but they use it as a medium of instruction. As a direct consequence of this, there has been a noticeable shift in the kinds of responses that were shown in the examination. Second, participation in the academic support program, i.e. teaching the experimental group resulted in a statistically significant improvement in the students of medicine in learning medical terms through understanding of affixes, as measured by the difference in test scores obtained before and after the teaching program. In conclusion, the findings of this experiment offer support for the hypothesis that the proposed academic support program improved the experimental group's post-test scores in learning medical terminology using affixes. This conclusion is supported by the evidence offered by the results of the experiment.

6. RECOMMENDATIONS

1. Students of medicine should be aware of the effectiveness of affixes that contribute to better learning of medical terminology.
2. Students of medicine should practice breaking down medical terms into their components to understand their meaning.
3. Understanding medical terminology requires familiarity with prevalent medical roots, prefixes, and suffixes, therefore students of medicine should practically study affixes.
4. It is important that professors in the field of medicine reduce the complexity of medical subject particularly the terminologies through the application of affixes.
5. It is also significant for teachers in the field of medicine to create a preliminary course of teaching medical terminology for fresher students which includes mainly the role of affixes.

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