

ESP Based Genre Analysis of Lexico-Syntactic Structures of Medicine and Surgery Texts

Ngozi Chidinma Anigbogu¹ (Ph.D.) & Chika Glory Opara² (Ph.D.)

Abstract

The ESP genre-based analysis dwells on the discourse patterns and language use in specific disciplines. It is perceptively rewarding in teaching and learning specific English. Therefore, the study examined the lexis and structure of medicine and surgery texts to establish the language use in the field. It also investigated the forms and structure needed for the pedagogy of teaching and learning specific English. The data was collected through the corpora randomly selected from seven branches of medicine and surgery. The researchers employed the content analysis theory to give both quantitative and qualitative analysis of the texts. It was discovered that the texts were replete with technical words. Some of the words revealed that the texts contained Greek and Latin prefixes and suffixes while some were eponyms and synonyms. The study also observed a variety of sentence types in the forms of simple, compound, complex and compound-complex structures however there was preference for compound-complex and simple sentences than other types in the texts. The compound complex sentences were prevalent in the texts. These peculiarities showed the language use in the field of medicine and surgery. For pedagogical implications, language instructions should focus on word formation processes, lexical relations and salient syntactic structures. Therefore, the researchers concluded that the ESP based genre analysis had pedagogical potentials and they recommended teaching and learning of discipline specific English language programs for the learners in the field.

Keywords: English for Specific Purposes, lexico-syntactic, analysis, texts, medicine, surgery

Introduction

English for Specific Purposes (ESP) is an approach to teaching and learning specialized varieties of English for communicative competence. It is a learner centered approach to teaching and learning English which enables learners to function adequately in their specific areas of study and profession. Since language use in English varies in contexts, tailoring language teaching and learning to meet the needs of learners in various fields of human endeavor becomes paramount. Learners in different fields of study need to master linguistic items specific to their fields such as registers and specialized structures.

The ESP approach is important in laying the foundation for further learning and refinement of language skills needed for communication in various professions (Musklin, 2016). Therefore, ESP is related in content to specific disciplines and occupation. It employs authentic specific learning resources to facilitate learning in advanced academic situations. Different researchers have stressed on the significance, characteristics and the specific types of ESP and the role they play in facilitating discipline specific knowledge in different academic and occupational settings (Hutchison and Waters, 1987; Dudley-Evans and St John, 1984; Carter, 1983; Mackay and Mountford, 1978; Williams, Swales and Kirkman, 1984).

Within an ESP course, it is pivotal that learners acquire the English skills which will enable them to communicate with English speaking specialists all over the world (Ono and Morimura, 2001). However, some learners in science and technology disciplines often believe that they do not need English language courses to improve on their academic work and profession. So, they develop apathy towards language courses.

¹ Directorate of General Studies, Federal University of Technology, Owerri Email: ngozichidinma5@gmail.com
Phone: +2348034911573

² Directorate of General Studies, Federal University of Technology, Owerri, Email: kochikason@yahoo.com
Phone: +2348065227770

Medicine and surgery texts contain diverse technical registers. Sometimes the vocabulary needs to be decoded by learners who are still nascent in the field. Equally, some medical syntactic structures pose challenges to the learners learning the English language. Thus, Arya, Hiebert and Pearson (2011) assert that lexical complexity has a significant impact on comprehension of science texts. Learners in the field of medicine and surgery need to acquire and understand the technical registers and the syntactic structures in their field. Therefore, specific English instruction in the field of medicine and surgery is very crucial to them. The ESP learners need courses which will enable them to tap and strengthen their perceptions about communication in science and to use perceptions in communicative activities meaningful to their specific career. It is then imperative for ESP instructors to mount activities to assist learners to learn specific English. Bathia (1991) sees genre analysis as one method which ESP practitioners can utilize in devising appropriate activities potentially significant for the achievement of desired communication outcome in specialized academic or occupational areas. Continuing, he states that “genre analysis is an analytical framework which reveals not only the utilizable form-function correlatives but also contributes significantly to our understanding of the cognitive structuring of information in specific areas of language use. The genre analysis does not only have pedagogical potentials but also illuminates the process of communication in a given genre”.

Also, genre analysts explore the specific patterns of grammar usage, key vocabulary and the text structures in particular text types. Hence, the focus of ESP genre analysis is on discourse elements such as register, syntactic structures and language use found in specific discourses. Dudley Evans (2014) reiterates that a much more promising approach to the theory of ESP comes from the analysis of ESP texts and the author stresses that the activities are linked to a view text.

The study, therefore, seeks to examine the lexis and syntactic structures of medicine and surgery texts. The study also highlights the form and structure of the texts which can be pedagogically utilized in the ESP approach to teaching and learning. Three research questions are hereby posited to guide the study:

What salient lexis is found in the field of medicine and surgery?

What are the predominant syntactic structures in this field?

What structures and lexical items in medicine and surgery can ESP instructors pedagogically utilize in the ESP approach?

METHODOLOGY

Research Instrument: Corpora drawn from medicine and surgery textbooks and journals were utilized for the study. Ten textbooks and seven journal articles in seven branches of medicine and surgery namely gynecology/obstetrics, neurology, cardiology, surgery, otorhinlaryngology, optometry and pediatrics were selected, read and analyzed. The corpora from the textbooks and journals were read for thorough analysis.

Research Procedure

Analysis was carried out at the levels of lexis and structures using qualitative and quantitative research methods. The methodological approach adopted was guided by content analysis framework as it analyses language in descriptive and quantitative forms. The framework states that communication patterns in fields of life differ according to content and context and that language functions to fulfill a range of human needs in specific fields of human endeavor. These linguistic functions are reflected in their organization as a system in different fields of life.

A total of seven hundred words which is a representation of the data drawn from the branches of medicine were examined in the study using random sampling method. At the sentence level, seven hundred sentences equally extracted from the medical texts and journals from the seven branches of medicine were also analyzed. The researchers engaged the services of two medical doctors to assist in the interpretation of the lexical items and sentences. The researchers reasoned that language is content and context specific. Hence, the medical doctors are expected to render more definite and detailed interpretations of the lexical items and structures in their discipline. The lexical items and sentence structures were analyzed. From the results, the distinctive lexical and syntactic features of medicine and surgery were determined and established. Specific language for medical profession was also established based on the peculiar syntactic features observed. Some examples drawn from the materials read were shown in the study.

Theoretical Framework

The theoretical framework adopted in this study is qualitative and quantitative content analysis. Context analysis is a systematic approach to analyzing the context and meaning of a written or verbal communication (Cole 1988). According to Cananagh (1997) it is used to develop an understanding of the meaning of communication. It is concerned with meanings, intentions, consequences and contexts (Downe and Wamboldt, 1992).

Harwood and Garry (2003: 107) explain that context analysis was first used as a method for analyzing hymns, newspapers and magazine, articles, advertisements and political speeches in the 19th century. Gerbic & Stacey (2005) assert that materials can be analyzed in both quantitative and qualitative ways by categorizing the code, mode, theme and concepts within the text. Thus, Context Analysis quantifies the frequency of occurrence of words, phrases, subjects or concepts in a set of texts and interprets the text systematically based on the organization of language in such texts, (McCain 1988, Cavanagh 1997, Guthrie et al, 2004). The text is broken down or coded into manageable categories in varieties of language levels and analyzed. There are two modes of analysis namely: qualitative and quantitative. At the lexical level, the quantitative content analysis focuses on accounting for the frequency of words, phrases, subjects or concepts in a text while qualitative content analysis makes quality inference by analyzing word meanings and the semantic relationship of words for better understanding of the intentions and thoughts at different contexts. (Eko & kyngas 2007).

At the sentence level, Context Analysis describes the way sentences are used in a text and how they work to transfer specific information. The length and types of sentences are used to convey specific effects. Sentences are used for descriptive purposes, for effective communication and emphasis. Summarily, the specific goals of Content Analysis are to find correlations and patterns in a text; that is, how concepts are communicated and to understand the intention of an individual, groups and institutions so as to grasp the flow of information in a context. It also helps to reveal differences in communication in different contexts and analyzes the consequences of communication in a context (Elo & Kyngas 2007).

Since context analysis approaches language descriptively based on context and content and at variety of linguistic levels, it therefore provides the framework for the description and explanation of language specific in medicine. Since language is context specific, the study of language in a specific context is relevant to this study as it provides a deeper understanding and interpretation of the language of the medical profession thereby helps the language instructor to teach objectively according to the students’ needs. Thus, the teaching of language will be more need-based.

Lexical Features of Medicine and Surgery Profession

This section examined the distinctive lexical features of medicine and surgery, that is, the nature and meanings of medical registers and other lexical peculiarities. The researchers discovered a significant number of technical words in the text examined. The technical words have their peculiar meanings. Thus, the texts were interpreted with the help of the medical doctors in the field who worked with the researchers. The technical words were decoded semantically in the tables below.

TABLE 1 : LEXICAL ITEMS IN CARDIOLOGY

	Words	Meanings
1	Cardiomyopathy	An acquired or hereditary disease of the heart muscle
2	Praecordium	The area of the chest where the heart lies
3	Tachyponea	Increase respiration
4	Myxoma	Cardiac tumors
5	Infective Endocarditis	Microbial infection of a heart valve
6	PulsusParous	Small volume pulse
7	Echocardiography	Cardiac ultra sound – a major diagnostic tool in modern cardiology
8	Aeitology	Cause
9	Hypertension	The disorder of abnormally high blood pressure
10	Hypertensive	Pertaining to, or causing hypertension

TABLE 2: LEXICAL ITEMS IN GYNEACOLOGY AND OBSTETRICS

11	Amazia	Complete absence of breasts
12	Polymazia	Multiple breasts
13	Galactocele	A milk-containing cyst which develops during lactation
14	Mastectomy	Removal of breasts
15	Duct Ectasia	Dilation of the lactiferous ducts
16	Fibroadenoma	An aberration of a developing lobular unit due to hormones
17	Gyneacomastia	A feminine enlargement of the male breast
18	Lactational Mastitis	cracks on the nipple due to the trauma of infant suckling
19	The Apgar score	A tool that assists in the recognition of an infant who is failing to make a

		successful transition to extrauterine life
20	Epidural analgesia	The most reliable means of providing effective analgesia in labor.
21	Antepartum hemorrhage	vaginal bleeding

TABLE 3 LEXICAL ITEMS IN NEUROLOGY:

22	Dementia	Loss of Mind
23	Dysarthria	Lesions in the nervous pathways
24	Dysphasia	Disorder of comprehension and expression of meanings by use of words.
25	Anosmia	Inability to smell
26	Ptosis	Dropping of the eyelids
27	Nystagmus	Repetitive to and fro movement of the eyes
28	Dysphonia	The abnormal voice production caused by a mechanical abnormality in the organs of speech
29	Epilepticus	A single seizure or two or more seizures within five minutes
30	Atrophy	Reduction in size or shrinking of an organ/tissue or complete disappearance

TABLE 4 LEXICAL ITEMS IN PAEDIATRICS

31	Encopresis	Incontinence of stool or faecal soiling
32	Enuresis	Incontinence of urine/bed –wetting
33	Pica	Dirt eating or other abnormal substances taken into the mouth by children
34	Trichobezoar	Hair ball obstructing the stomach due to plucking hair and swallowing it
35	Trichotillomania	Plucking hair
36	Acute coryza	Common cold
37	Lymphadenopathy	Enlargement of lymph nodes in children
38	Genisvalgum	Knock knees
39	Pigeon toes	In-toeing
40	Candida	Thrush
41	Meiosis	Nuclear cell division of mature reproduction cells.

Table: 5 LEXICAL ITEMS IN OTORHINOLARYGOLOGY:

42	Otorrhoea	Discharge from the ear
43	Tinnitus	Noise in the ear
44	Hyperacusis	Sensation of pain on exposure to loud shrill noises
45	Labyrinthitis	Inflammation of the inner ear
46	Epistaxis	Spontaneous or induced bleeding from the nose
47	Rhinitis	Nasal mucous membrane
46	Infectious Mononucleosis	Uncommon self-limiting disease characterized by sore throat, malaise headache.
49	Presbycusis	Senile loss of hearing due to loss of hair cells
50	Otorhinolaryngology	Disorders of the ear, nose and throat
51	Astrocytoma	The commonest primary tumor of the central nervous system.

TABLE 6: LEXICAL ITEMS IN SURGERY:

52	Lipoma	A swelling of normal fat enclosed in a capsule of connective tissue
53	Macroglossia	A chronic enlargement of the tongue
54	Pericoronitis	Inflammation of the gum covering an erupting or partially erupted tooth
55	Telemetry	Circuitry that monitors, measures and transmits various parameters within the pulse generator
56	Myxoma	Cardiac tumors

57	Angina pectoris	A syndrome characterized by chest pain, tightness or discomfort
58	Paralytic ileus	Obstruction due to functional paralysis of the intestine
59	Permatofibrosarcoma	Uncommon skin tumor of low grade malignancy
60	Contusion	Bruise
61	Cerebral Oedema	Brain swelling after head trauma
62	Abnormal Heamostasis	Excessive bleeding during or after operation.
63	Occult meningeal	Hidden or concealed from view as a hemorrhage.
64	Malacia	Abnormal softening of organs
65	Thrombus	A blood clot that obstructs a blood vessel or cavity of the heart
66	Thrombosis	Formation of thrombus
67	Occlusion	The state of being occluded or closed
68	Anencephaly	An absence of brain or spinal cord
69	Oliguria	Insufficiency in the amount of urine produced
70	Contractility	Being able to contract or shrink
71	Cardiac obturate	To obstruct or to close
72	Dipsosis	Abnormal thirst
73	Laryngectomy	The surgical removal of part or all of the larynx
74	Evagination	The protrusion of an organ from its natural place
75	Ectopotomy	Surgical removal of fetus in ectopic pregnancy
76	Neuronal	To cause an abnormal amount of blood to acuminate in an organ
77	Marcrocardius	Abnormal heart enlargement
78	Macrodentia	Abnormal large size of one or more teeth
79	Macromastia	Abnormal enlargement of breasts
80	Macrocephaly	An excessive large head

Table :7 LEXICAL ITEMS IN OPTOMETRY

81	Choriod	The vascular coat of the eye between the selera and retina
82	Retinitis	Inflammation of the retina
83	Retinoscopy	An examination of the retina to determine refractory errors
84	Madarosis	The loss of eyelashes or eyebrows
85	Retrolental	Behind the lens of the eyes
86	Chloropsia	Vision in which all things appear green
87	Chorioretinitis	Inflammation of the choroid and retina
88	Chromatopsia	Color blindness
89	Diplopia	Having double vision
90	Ophthalmia	Inflammation of the eye

Discussion at the Lexical Level

At the lexical level the researchers observed that the peculiarities in medical lexicons are sensitive to contents and situations.

The researchers discovered that some of the terminologies in the field of medicine and surgery were eponyms. In fact, some of these words were derived from the names of persons and doctors who made major contributions to a cure or medical culture. The essence is to reduce the complexity of syndromes and diseases that would require long descriptive names (Garfield, 1983:384). Thus the specialized derivation helps in the understanding of special lexicons. It also makes the intentions of the concepts clearer. So in medicine, words are not used arbitrarily. Medical terms have root and history. They are eponymic. In fact, Greek and Latin terminologies are basically employed in the field of medicine and surgery. Most of the words the researchers observed are of Greek and Latin origins. The researchers concur with Garfield (1983) that the use of eponyms boosts the students' rate of understanding because when the students know the specialized derivations and etymology, they have a deeper understanding of the terms and this helps them to retain the meaning of the words. Hence they function better in their area of study. The above facts answer research question one.

Again the researchers observed that the medical language is characterized by loan words. Taylor (2017:3) asserts that "80.3% of the words in the modern English language of medicine is derived from Greek, French and Latin". This implies that English has not always been pre-eminent in the language of medicine and surgery. Greek and Latin terminologies are basically employed in the field of medicine and surgery. This observation affirms Repas' (2013) assertion that three quarters of medical terminologies are of Greek origin. The implication is that Greeks are the founders of natural medicine in the golden age (Repas, 2013). The researchers also observed that some words used in a particular branch of medicine can also be found in other branches of medicine and surgery.

Furthermore, many of the words the researchers studied had Greek and Latin affixations. A significant number of words from the materials read contain Greek and Latin prefixes and suffixes. Most of these words the researchers discovered have Greek and Latin affixation. The terminologies are divided into two main parts: anatomical (based on Latin) and clinical (based on Greek) (Bujaalkova and Dzukanova 2015). Also many Medical terms are a mixture of Greek and Latin and such terms are called hybrid (Repas, 2013). Examples are in table 8 below.

TABLE 8: SOME OF THE PREFIXES FROM THE LEXICAL EXCERPTS:

PREFIX	MEANINGS	ORIGIN	EXAMPLES
Dis-	Separation, taking apart	Latin	Dysphasia Dysphonia Dysarthria
Dys-	bad, difficult		
Derma-	Pertaining to the skin	Greek	Dermatology
Cardio-	Pertaining to the heart Heart	Greek	Cardiology Cardiomyopathy
Gyn(ea) o-	Woman Pertaining to the breast	Greek	Gynaecology, Gyneacomastia
Ot(o)-	Pertaining to the ear	Greek	Otorhinolaryngology Otorrhoea
a-, an -	Denotes an absence of, without	Greek	Amazia
Contra-	Against	Latin	Contraception
Poly-	Depicts plurality of something	Greek	Polymazia
Lact(i)- Lact (o)-	Milk	Latin	Lactational
My x(o)-	Mucus	Greek	Myxoma
Hyper-	Extreme or beyond normal	Greek	Hypertension
Lymph (o)	Lymph	Greek	Lymphoma
Cere br(o)-	Pertaining to the brain	Latin	Cerebral oedema
Neur (o)	Pertaining to the nerve and nervous system	Greek	Neurology

TABLE :9 SOME OF THE SUFFIXES FOUND IN THE EXCERPTS

SUFFIX	MEANINGS	ORIGIN	EXAMPLES
-Oma (sing)	Tumor/Mass collection	Greek	Myxoma, permatofibrosarcoma
-Omato(plu)	Mass collection		Lipoma, Astrocytoma
-Logy	Denotes the academia, study or	Greek	Cardiology

	practice of a certain field		Neurology Gyneacology Otorhinolarygology
-Osis	A condition, disease increase	Greek	Mononucleosis,psychosis
-iasis	Condition	Greek	Abnormal Homeostasis
-ics	Organized knowledge	Greek	Pediatrics, obstetrics
-ist	One who specializes in	Greek	Dermatologist
-tony	Act of cutting or incising	Greek	Mastectomy
-it is	Inflammation	-	Mastitis, Labyrinthis, rhinitis ,pericorontis
-pathy	Denotes a disease or disorder	Greek	Lymphadenopathy
-rhoea	Flowing, discharge	Greek	Otorrhoea
-staxis	Dripping, trickling	Greek	Epistaxis
Tension/tensive	Pressure	Latin	Hypertension Hypertensive

Thus, medical terminology is replete with technical words which can be interpreted in ordinary expressions. Bujaalkova and Dzuganova (2015) have categorized them into two: standardized anatomical terminology and a quick developing clinical terminology of all medical branches.

Synonyms:

Apart from the prefixes and suffixes, the researchers also discovered some synonyms in the medical texts.

Table :10 WORDS AND SYNONYMS

WORDS	SYNONYMS
Aeitology	Cause
Haemorrhage	Bleeding
Candida	Thrush
Dementia	Madness
Contusion	Bruise
Tumor	Growth

Syntactic Features of Medicine and Surgery Texts

The analysis here is at the syntactic level .The syntactic features of medicine and surgery texts were analyzed and established .The forms that have high frequency of occurrence and wide distribution were identified, classified and analyzed.

The sentence types in the sub-branches of medicine and surgery were categorized. A total of seven hundred sentences (one hundred from each sub-group) were analyzed into types namely: simple, compound, complex, and compound complex. **Some** examples in each branch presented in a qualitative form are:

TABLE 11: SOME EXAMPLES OF SENTENCES FROM THE 7 SUB-BRANCHES OF MEDICINE AND SURGERY

S/N	SENTENCES	TYPES
1	Changes in circulating hormone concentrations also markedly affect the simple tissues of the genital tract.	Simple
2	The pulmonary odema should be treated with oxygen and diuretics.	Simple
3	Early pregnancy is associated with hormonal changes resulting in fluid retention and expansion of the plasma volume.	Simple
4	Immediately after the placenta has separated from the wall of the uterus, the interlocking muscle fibres of the uterus contract.	Complex
5	Oestradiol stimulates growth of the columnar epithelium of	Simple

	the cervical canal.	
6	The number of glandular ducts is increased by oestrogen, whilst progesterone and human placental lactogen (hpl) increase the number of gland alveoli.	Complex
7	Vasodilation, such as occurs in pregnancy, results from the relaxation of vascular smooth muscles.	Simple
8	The marked reduction in PCO ₂ could also have dramatic implication for maternal homeostasis.	Simple
9	Increases in cardiac output affect both sides of the heart and thus it will be readily appreciated that human pregnancy must be associated with very substantial increases in pulmonary blood flow.	Compound-complex
10	In these cases, there is initial activation of the neurons in a localized area of the cortex and symptoms depend on the area of the cerebral cortex involved.	Compound
11	The seizures may be motor, sensory, autonomic or psychic.	Simple
12	Epilepsies may be idiopathic or secondary.	Simple
13	Patients with status epileptics usually have several fits in succession without a period of recovery in-between the attacks or a single attack which lasts for more than thirty minutes	Complex
14	In order to improve evaluation of regional and global left ventricular function on which this test relies, new echocardiographic machines possess facilities for endocardial boundary detection (acoustic quantification) and colour kinesis which colour encoded the boundary tissue.	complex
15	The lesion here is located in the postero- inferior frontal gyms of the dominant hemisphere and can be tested by asking the patients to name objects.	Compound
16	From the nasal mucosa, nerve fibres pass through the cribriform plate to synapse in the olfactory bulb.	Simple
17	Lesions of the optic tracts, optic radiation and occipalcontext cause homonymous hemianopia.	Simple
18	Secondary optic atrophy occurs as a consequence of retinal lesions such as retinitis pigmentose or choroidorentinitis .	Simple
19	The brain and the spinal cord are covered by three layers of meninges: the outermost toughest layer is known as dura matter, the next layer is known as arachnoid matter and the innermost thin layer is known as pia-matter.	Compound
20	The adhesions look like cobweb and hence the name for the membrane is arachnoid (spider) membrane.	Compound
21	Extended spectrum lactamases (ESBL) producing pathogens exhibit resistance and not only to newer lactam, including third generation cephalosporins and minobactams but also other classes of antibiotics ESBL resistance the gene are located on palmid which are transferable to other strains, thus posing considerable infection control tissue.	Compound complex
22	Should one of the coronaries arteries become completely block usually due to plague that raptures it causes a blood clot to form, hence blood supply to part of the heart may be lost.	Compound complex
23	Although data on COVID-19 revealed that risk to pregnant women and new babies are limited, a recent study found that pregnant women with COVID-19 have 1.5 times the risk of being admitted to an intensive care unit (ICU) and 1.7times the risk of requiring mechanical ventilation faced by non-pregnant women of child bearing age with COVID-19 but pregnant women are not at increased risk for death.	Compound complex
24	In this examination, light is directed through a slide which	Compound complex

	contains fluid from syphilitic lesions in such a way that rays striking any organism on the slide will cause them to appear as bright objects against a dark background.	
25	After ingestion, the larva penetrates the intestinal wall, matures in the retroperitoneal space, migrates to the subcutaneous tissue where it produces a skin ulcer through which the female worm discharges larvae after contact with water.	Compound complex
26	In particular, look for swelling and tenderness of the bones and if the patient is suspected to have sickle-cell disease, pay attention to the fingers and the toes.	Compound complex
27		
28	Thromboplastin generation test measures the formation of intrinsic prothrombinase and is used to obtain information from which the nature of a plasma coagulation factor deficiency can be inferred.	Compound complex
29	The pain of the musculoskeletal origin can be provoked by contraction of the muscles; there is often local tenderness while the site of the pain is described by the patient may be both vague and variable.	Compound complex
30	The ups and downs of lipo protein (a) {LP (a)} in the last 30 years of atherosclerosis research are considerable.	Simple
31	In a series of publications during the last years, the group around Eric stores and colleagues have elegantly investigated the influence of LP (a) on arterial wall inflammation and monocyte trafficking to the artenal walls.	Simple with compound predication
32	Indeed the hypothesis that monocytes play a role in LP (a) pathophysiology has a long history.	Simple
33	These oxidized lipid species are recognized by pattern recognition receptors of innate immune cells and trigger the whole cascade of inflammatory processes that can finally lead to plague destabilization.	Compound complex
34	Now, on the eve of the introduction of potent LP (a) has been growing dramatically, although we still do not understand many aspects of the role of LP (a) in the development of atherosclerosis.	Complex
35	They reach from a first enthusiasm in the 1980s to an almost infamous end in the early 1990s which is caused by flawed epidemiological studies to a resurrection by the first mendelian randomization studies.	Complex
36	The human body consists of numerous tissues and organs which are diverse in structure and function, yet they function together and in harmony for the well-being of the body as a whole.	Complex
37	It is obvious that there has to be some kind of influence that monitors and controls the working of different part of the body.	Complex
38	Although there are other mechanisms that help in such control such as hormones, the overwhelming role in directing the activities of the body rests with the nervous system.	Complex
39	Because bacteriophages seem incapable of infecting eukaryotic cells, they can serve as safe therapentic agents	Complex
40	There are some clues on physical examinations that suggest the presence of narrowed arteries to the heart and coronary arteries disease; the doctor may check for high blood pressure or palpate (feel) for the pulses in the wrists and feet to see if	Compound complex

	they are present and if they are normal in their amplitude and force.	
41	Bacteriophage therapy has continued to be developed in the former Soviet Union and Eastern wherein expensive clinical usage suggests their safety.	Complex
42		
43	They were considered for treatment of human bacterial infections shortly after their discovery in 1915.	Simple
44	The advent of MAR pathogens resurrected bacteriophage treatment research.	Simple
45	. It is about a 68 year old woman who presented to the emergency department with a painful inflammatory swelling in the right upper abdomen and the epigastrium since 6 days.	Complex
46	She had a medical history of obesity and type 2 diabetes.	Simple
47	She had no surgical history.	Simple
48	She presented a lump in the right upper abdomen and the epigastrium measured 5 x6cm which is red and painful.	Complex
49	The complication is generally observed in chronic cholecystitis.	Simple
50	The collection extended into the abdominal cavity with a contiguous collection adjacent the region of the gall bladder foss.	Simple
51	This review article presents a comprehensive analysis of the current data in relation to covid-19 and its effect on pregnant women, including symptoms, disease severity and the risk of vertical transmission.	Simple with compound predicate
52	At present, it does not appear that women are at increased risk of severe infection than the general population, although there are vulnerable groups within both the pregnant and non-pregnant population and clinicians should be cognizant of these high-risk groups and manage them accordingly	Compound complex
53	Neither vaginal delivery nor cesarean section confers additional risks and there is minimal risk of vertical transmission to the neonate from either mode of delivery.	Compound
54	Acute ischemic stroke (AIS) is a worldwide health burden and the leading cause of disability in adults.	Simple
55	Some studies have shown the potential benefit of endovascular treatment during the first 16 to 24 hours from the AIS symptom onset if there is a favorable penumbra without a large infarct core.	Complex
56	Tenecteplase is a modified form of alteplase with 14-fold more fibrin specificity and enhances ability for thrombolysis.	Simple
57	The retina has a complex structure.	Simple
58	When the head and eyes are maintained in a fixed position and one eye is closed, the area seen by that eye constitutes the visual field for that eye.	Complex
59	In other word, the visual fields of the two eyes overlap to a very great extent.	Simple
60	Although the two eyes view the same area, the relative position of objects within the area appears somewhat dissimilar to the two eyes, they view the object from slightly different angles.	Compound complex
61	Loss of vision in one half of the visual field is called Lemiaoropia.	Simple

62	If the same half of the visual field is lost in both eyes, the defect is said to be homonymous and if different halves are lost, the effect is said to be heteronymous.	Compound complex
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TABLE :12 ANALYSIS FROM THE TEXTS/ JOURNALS

S/N	BRANCHES OF MEDICINE AND SURGERY	TOTAL NUMBER OF SENTENCES PER TEXT	SENTENCE TYPES							
			Simple		Compound		Complex		Compound complex	
			No.	%	No.	%	No.	%	No.	%
1	Gynecology/Obstetrics	100	32	4.6%	14	2%	15	2.1%	40	5.7%
2	Otorhinolarygology	100	28	4%	12	1.7%	16	2.3%	44	6.25%
3	Pediatrics	100	32	4.6%	16	2.3%	14	2%	38	5.4%
4	Neurology	100	36	5%	16	2.3%	12	1.7%	36	5%
5	Surgery	100	25	3.6%	22	3.1%	18	2.6%	35	5%
6	Cardiology	100	35	5%	18	2.6%	12	1.7%	36	5%
7	Optometry	100	34	4.9%	17	2.4%	16	2.3%	31	4.4%
	Total	700	222	31.7%	115	16.4%	103	14.7%	260	37.1%

Discussion at the level of sentence

The researchers observed that writers of medicine and surgery texts employ a variety of sentence types. However it was observed that simple and compound complex sentences were more frequently used in both textbooks and journals than compound and complex sentences. There were more instances of simple sentences and instances of compound complex sentences as against compound and complex sentences. The researchers observed the preference many writers have for simple sentences and compound complex sentences .For instance out of 700 sentences used for the analysis, the study recorded a total of 222,(31.7%)for simple sentences; 115, (16.4%) for compound sentences;103, (14.7%) for complex sentences and 260 (37.1%)for compound complex sentences respectively.

While compound complex sentences as the researchers observed are employed to explain concepts, ideas, symptoms and information that require detailed and elaborate illustration or explanation, the simple sentences are used for exactness and emphasis because the medical profession deals on ideas and complicated procedures. These ideas and concepts are embedded in the sentences. They deal with life. So the language should be clear. The text books and journal articles contain a lot of complex, complicated and delicate ideas that are described in long chains of sentences. Indeed, the language of medicine is descriptive. Hence compound complex sentences are used to explain the complicated analytical concepts, ideas, symptoms and procedures.

The data revealed that most paragraphs consist of one or two sentences. In the bid to be explicit and direct, the concepts are expressed in paragraphs which comprise one or two sentences as seen in the sentence in the paragraph below:

When the heart pumps large quantities of blood, the area of the diagram becomes much larger, that is, it extends far to the right because the ventricle fills with more blood during diastole. It rises much higher because the ventricles contract with greater preserves and it usually extents further to the left because the ventricles contracts to a smaller volume – especially if the ventricle is stimulated to increased activity by the sympathetic nervous system (Culled from Hall 2016, p. 118)

The above paragraph shows one of the communication patterns in the field of medicine .This observation answers research questions two and three. We corroborate with Resenwater and Stephen’s (2012) observation that compound complex sentences are essential in representing complex relationship and are frequently put to use in various forms of analytical writing. The scholars further explain that writers bring different pieces of information and order them in relationship to one another in a single sentence.

Thus, the study revealed that medicine and surgery demand elaborate illustration of facts and sentences are linked with each other to avoid misconception of ideas. This observation confirms Tetzner's (2017) observation that scientists tend to write about difficult issues and complex research hence the need to express complex ideas and facts in compound complex sentences.

The Pedagogical Implications of the ESP based Analysis Approach

The ESP as a discipline-specific English is enhanced through collaborative learning and teaching. It utilizes authentic work specific documents and materials from different fields and professions. Since it focuses on the necessary language, genre, skills of learning, themes and topics of particular disciplines, tailoring the language to meet learners' requirements becomes paramount. It is therefore pivotal to adopt ESP language teaching approach which employs the actual language use in particular disciplines. It is a need based approach. In the case of English for medicine and surgery, instructions would have to focus on word formation processes, the etymology of words and lexical relations using real life texts to improve the learners' communicative competence.

This is imperative since ESP often resorts to specific areas which may be subject-based, theme based or skill-based (Dudley Evans and St John, 1998). Furthermore, adopting the syntactic structures of medicine and surgery is critical for learners studying English for medicine and surgery since the ESP is centered on the grammar, lexis, discourse and genres appropriate to different disciplines. Hence Williams, Swales and Kirkman (1988) stressed that ESP is concerned with communicative as well as linguistic competence as seen in attention to text information, structure in reading and writing, appropriateness of style in academic writing and study skills. Getting text information and other skills is achieved through genre analysis of texts. Also genre analysis is directly relevant to the classroom due to its emphasis on the importance of rhetorical text structure (Hyland, 1992). These facts explain, Celce –Murcia and Larsen Freeman's(1999) assertion that language description in ESP genre studies draws mostly on what may be called a pedagogic view of language.

There is need for specialized English that is relevant to each branch of medicine and surgery. When teaching students in the field of medicine and surgery, the language instructors should emphasize the compound-complex, and simple sentences. Textbooks in the field of medicine and surgery contain a lot of technical words which are of Greek and Latin and French origin. These technical words are also replete of significant number of prefixes and suffixes. It is needful to translate the terms to English while teaching the students, for example, medulla oblongata in English language is lower brainstem.

Conclusion

The ESP genre analysis of medicine and surgery has pedagogical potentials. These pedagogical potentials become a reality through collaborative teaching and learning. The reality is perceived through the assistance of content specialists in the field of medicine and surgery and language teachers. The researchers recommend that ESP should be integrated in the teaching of students in medical field for effective results to be achieved by the professionals in the field both nationally and internationally. Medical students should have special language programs in addition to the general English program.

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