

A Brief Analysis of Lexical Features of English Virology Texts*

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COVID has already been taken as a global pandemic, the culprit of which is the virus called SARS-CoV-2. Virologists around the world have been working hard at trying to find remedies and protection methods for the world. This paper is a brief analysis of lexical features of English virology texts, which will show that technical words, semi-technical words, and acronyms are the three prominent lexical features of English virology tests. It may be helpful in guiding cross-language communication in the virologists' community, which the authors hope would facilitate global research on COVID.

Keywords: lexical features, virology, cross-language communication

Introduction

The COVID pandemic has plagued the world ever since 2019, and has brought huge financial and sociological damage to every country. Scientists have been working on the virus continuously and have been making great progress on vaccines and treatment of the disease. Achievements would not have been made in such a limited time without international collaborations, which bring forth the subject of cross-language communication. This paper analyses lexical features in English virology texts, which might be of use in facilitating communication in the international virologists' community.

We searched for relevant research but did not find any. Using “Virology” and “lexical feature” as keywords, we did not find related works on Google Scholar and Bing Scholar. A general search using Bing and Google did not show any related information on this subject. A search on professional article search engines like Wiley also yielded no result, indicating that there are no public publications analyzing lexical features of English virology texts.

Lexical Features of Virology Texts

Research papers on virology typically show new developments on the type of virus, chemical makeup of the virus, structure of the virus, duplication method of the virus, diseases caused by a virus, and the symptoms, diagnostic method, treatment, and prevention of them. Obviously, they are complicated and serious scientific subjects that require profound knowledge to understand or investigate.

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Technical Words

It is understandable that technical words in virology and medicines are used frequently in virology texts. For non-English speakers or scholars that are not in the virology profession, grasping so many technical words can be of great trouble, but failure in familiarizing themselves with the terms would result in difficulty in understanding and translating virology texts.

Example 1: For example, while infection with HPV is best known for causing verrucous papules, other manifestations of this viral infection include erythematous macules in Epidermodysplasia Verruciformis (EV), smooth papules in bowenoid papulosis, and fungating Buschke-Lowenstein tumors. Vesicles are considered the primary lesion in Herpes Simplex Virus (HSV), Varicella-Zoster Virus (VZV), and many coxsackievirus infections.

From this example, we can gain some insights into the type and density of technical words used in virology texts. Example 1 has 53 words, 23 of which are technical words, nearly accounting for half of the words. Though a conclusion on the average percentage of technical words could not be drawn, one may see how terms are used in virology texts. In Example 1, four virology terms are used: HPV, Herpes Simplex Virus, Varicella-Zoster Virus, and coxsackievirus. And 10 medical terms referring to the symptoms the virus causes are used: verrucous, papule, erythematous, macule, Epidermodysplasia Verruciformis, bowenoid papulosis, Buschke Lowenstein tumor, vesicle, and primary lesion.

The names for the different types of viruses make up the huge vocabulary in virology, which could be a major difficulty for translators who are non-English speakers. They may constantly need to refer to a special dictionary to understand what the passage is about.

The table below lists some of the virus families in a major virology textbook *Fields Virology* (Howley, Knipe, & Whelan, 2020).

Table 1

Some Virus Families

Picornaviridae	Calciviridae
Astroviridae	Togaviridae
Flaviviridae	Coronaviridae
Arteriviridae	Filoviridae
Rhabdoviridae	Bornaviridae
Paramyxoviridae	Bunyaviridae
Orthomyxoviridae	

As is shown above, the virus families are named with words having an affix of -viridae. This is a distinct pattern of naming, which can be seen in virology classification systems and nomenclature.

A closer look at virus classification adopted by the international committee on taxonomy of viruses (Mahy & Regenmortel, 2008) shows that it uses the following hierarchy for classification (from highest to lowest): order, family, subfamily, genus, and species. The following table contains the terms for every level.

Genus and species have the same nomenclature: ending with -virus or a noun phrase with “virus” at the end, for example, two virus genera under the family of Flaviviridae: Flavivirus, which ends with -virus suffix, and Hepatitis C Virus which is a phrase with “virus” at the end.

Table 2

Virus Classification Indicated by Suffix

Classification hierarchy	Nomenclature
Order	-Virales
Family	-Viroidae
Subfamily	-Virinae
Genus	-Virus or virus noun phrase
Species	-Virus or virus noun phrase

Semi-technical Words

Besides virology and medical technical words, some common nouns are found to be used in the technical sense in virology texts. They are semi-technical words.

Example 2: The organism must be isolated in pure culture.

In Example 2, “isolation” means the separation of the virus, instead of its common meaning “to cause to be alone or apart, as in being inaccessible or unable to move about” (Editors of the American Heritage Dictionaries, hereafter AHD, 2011, <https://www.thefreedictionary.com/accessory>).

“Culture” means the cultivation of virus, not “The arts, beliefs, customs, institutions, and other products of human work and thought considered as a unit, especially with regard to a particular time or social group” (AHD, 2011, <https://www.thefreedictionary.com/culture>), which is its common meaning used in everyday communication.

Here, some more examples are listed in Table 3 to show that semi-technical words are great in number in the virology texts (AHD, 2011).

Table 3

Examples of Semi-technical Words in Virology Texts

Word	As common noun	In virology texts
Envelope	A flat paper cover or wrapper	The outer casing of some virus
Spike	A long, thick, sharp-pointed piece of wood or metal	A kind of protein on the surface of a virus
Colony	A group of emigrants or their descendants who settle in a distant territory but remain subject to or closely associated with the parent country	A group of Bacteria
Host	One who receives or entertains guests in a social or official capacity	The subject on which the virus lives
Family	A fundamental social group in society typically which consists of one or two parents and their children	One of the names in virus classification by hierarchy order

Acronyms

Acronyms are created so that the text will not be repeating long phrases that damage the readability of the text. This may be a difficulty for professionals and non-professionals alike, because remembering a set of an all-capitalized word that has a complicated full name is a demanding task.

Acronyms are used very frequently in virology texts. Four acronyms are used in Example 1: HPV (Human Papilloma Virus), EV (Epidermodyplasia Verruciformis), HSV (Herpes Simplex Virus), HCV (Hepatitis C Virus), VZV (Varicella-Zoster Virus).

Other than these, HHV (Human Herpes Virus), GVHD (Graft Versus-Host Disease), SIV (Simian Immunodeficiency Virus), RNA (Ribonucleic Acid), RSV (Respiratory Syncytial Virus), CMV (Cytomegalovirus), EBV (Epstein-Barr Virus), etc., are also the acronyms used in virology community.

A full name of the acronym would sometimes be given on its first appearance, or a table of references would be attached at the end of the text.

Conclusion

In the field of medical science, it is inevitable for virology text to use a large number of technical words. These technical words might be an obstacle for scientists trying to work across vastly different fields and non-English speakers trying to comprehend or translate. One may have to ask for the help of virology professionals or get access to a virology dictionary before being able to read related texts. Semi-technical word is a common phenomenon seen in a lot of fields of expertise, virology included. These common words used in the technical sense could be misleading and cause trouble for those who are not experienced in reading or translating virology texts. Compiling a dictionary for those words might be of great help in boosting the accessibility and readability of English virology texts. The use of acronyms can be confusing for even English-speaking virologists who might be reading across subdisciplines where unfamiliar acronyms might be used. Though new acronyms would be spelled in full for the first time in texts, when virologists of different languages communicate via IM or E-mail, non-English speaking scientists may still need to spend their time looking up acronyms.

Knowing the lexical features can be helpful for anyone trying to work in English on virology topics. It can act as a guide for people before reading or translating. It's also expected to help virologists exchange in an acceptable manner, and enable a faster and quicker understanding of related knowledge.

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