Morphological Study of Covid-19 Terminologies: An Indian Context

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Abstract: The outbreak of COVID-19, a world-wide pandemic, greatly affected the world leading to the death of the thousands of people world-wide. This unceasing event not only impacted the health of human beings but it also greatly impacted economy, education, and of course language, too. If we navigate through the aftermath of COVID-19, the impact of it on English language can be easily identified. It has led to many linguistic innovations which serve as a rich data base for the linguistic study. The present study aims to do morphological analysis of the terminologies that have emerged during the pandemic, COVID-19 in India. The main objective of the research is to identify and analyze the various morphological processes through which the terminologies have been created. The data for the present study were collected from various sources of print and electronic media which included newspapers, magazines, and social media platforms like face book. The sample size consisted of 50 terminologies which were identified and analyzed morphologically. The findings of the study highlight that various types of morphological processes such as affixation, compounding, blending, coinage, borrowing, abbreviation and acronyms are involved in the creation of the COVID-19 terminologies. The creation of new terminologies can be seen in terms of linguistic innovations which have greatly affected the lexicon of English language. The study attempts to contribute something meaningful to the field of morphology.

Keywords: Morphology, Morphological Study, COVID-19, COVID-19 Terminologies

1. Introduction

On December 2019, news emerged that a virus had been detected in Wuhan city of China which had been named 'Corona' virus (COVID-19) by WHO (Hussein 2023; Nzeakor, Duru & Udushirinwa). The impact of COVID-19 was such that it enormously affected the human life and posed a threat to the entire world. Though unceasing efforts were made to prevent this pandemic yet it was very difficult to tackle the situations particularly the unending death of humans from this disease. Nobody wanted to get infected with the risky and dangerous virus (Sahu, Mishra & Lal, 2020). The first confirmed case of COVID-19 in India was reported on January 30, 2020. This case marked the start of India's journey in dealing with the pandemic, leading to widespread public health measures and lockdowns in the following months. The Indian government and health authorities quickly ramped up testing, contact tracing, and awareness campaigns to manage the situation as the virus spread. The government issued many guidelines for the prevention from corona. The effect of the virus was so much that all the print media, electronic media and social media were flooded with the news of thousands of people dying. Just after the announcement of W.H.O., a complete lockdown was imposed in the country. Everything remained closed except the hospitals where people corona patients were crowded for treatment and saving their lives. This unceasing event has had a serious impact on all aspects of human life, from public health to economy, education, language and media (Hussein 2023). The outbreak the COVID-19 has caused the emergence of many new terminologies that never existed before (Nzeakor, Duru & Udushirinwa 2022; Al-Dala'ien & Al-Daher et. al 2022). As we continue to navigate the aftermath of COVID-19, the linguistic adaptations and innovations that occurred during COVID-19 have undoubtedly left a lasting impact on our communication landscape and the way we perceive the world. The innovation of new COVID-19 related terms and terminologies that people encountered during the pandemic refer to the dynamic nature of the language. A deeper understanding of the linguistic and morphological

changes that have occurred due to pandemic provides us valuable insight into the way language changes and evolves.

Many of the COVID-19 related terms have unique morphological structures which require an in-depth linguistic analysis. The morphological analysis of novel terminologies like '*COVID-19*', '*Infodemic*', and '*Quaranteam*' (Hussein 2023) etc. would not only help us understand the various aspects of the pandemic but this will also help us understand and analyze the underlying structures of these terminologies that shape them. Morphological processes are the integral part of Morphology which deals with the "*the study of forms*" Yule (2002). Similarly, Nwokedi & Benjamin (2003: 97) refers to it as "*the study of the internal structure of words and how words are formed*". Other scholars like Hamiedi & Hussein (2023), Aronoff & Fudeman (2011), and Haspelmath & Sims (2010) also define Morphology in the similar way. Further, analyzing morphological processes refer to analysis of the creation of words through various processes like affixation, compounding, blending, and coinage. By analyzing words through various morphological processes, one can easily understand the way language is evolved and produced by the human beings in the society. Thus, the significance of analyzing COVID-19 terminologies through various morphological processes is to understand the patterns of linguistic innovation through which these terms have been created and added to the lexicon of the medical discourse.

2. Previous Works

The impact of Covid-19 has not only impacted the world but it has also drawn the attention of many researchers from various fields of study to conduct research on the effect of COVID-19. The emergence of newly coined terms, words and phrases associated with the pandemic have also drawn the attention of linguists to carry out research in the area of morphology and other fields of linguistics. Some significant studies have been conducted on analyzing neologisms of COVID-19 from different perspectives. Some of the recent studies that have been conducted on the topic are discussed below:

Shahlee and Mustafa (2019) performed a study on analyzing neologism used by youth on social networking platforms by collecting data from students doing majors in English at a University of Malaysia. This study tries to identify morphological processes and word class of neologism created by youth. The study identified and analyzed the use of 90 neologisms on different social networking sites. The study found that the creation of new words occurred through the morphological process of acronym and most of them were verbs. The study highlighted the use of neologisms among the youth. This study is lacks analysis of COVID-19 terms and expressions.

Fitria (2021) attempts to analyze the process of word formation in the creation of newwords and phrases associated with pandemic. The research is based on qualitative research design. The research findings of the study reveal use of several word formation processes like borrowing, compounding, blending, acronym, and clipping involved in the creation of COVID-19 terms but lacks the frequencies of the processes.

The research work of Asif et.al (2021) is also a similar kind of study that explores the processes of neologism during COVID-19 terminologies. The findings of the study reveal word formation processes, borrowing and lexical deviation, acronyms and abbreviations as the part of neologisms of COVID-19. However, this study lacks the analysis of morphemic structure of the newly coined words during the pandemic. It also lacks in analyzing the frequencies of the word formation processes in neologisms of the terms.

Afrika & Kheryadi et.al (2021) also tries to identify and analyze various word formation processes and their frequencies in neologisms of COVID-19 terminologies. The findings of the research highlight use of word formation processes like borrowing, derivation, compounding, clipping, blending, coinage, and multiple processes in creation of pandemic related terms. The outcome of the research highlights blending to be the most frequent in neologisms of COVID-19 words and phrases.

Similar type of study has been also conducted by Tomic' & Novakovic' (2022) which focuses upon analyzing word-formation processes sind their frequency in creating new terms related to COVID-19, especially in written discourse. The researchers identify and analyze various word formation processes such as compounding, affixation, blending and acronyms in creation of COVID-19 terms. The research findings also highlight the frequency of word formation processes in which the process of compounding is the highest followed by affixation

in the creation of new terms. The research suggests that word formation processes like blending and acronyms are least followed in the creation of the terms.

Mohmoud and Hussein (2023), too, have attempted the morphological analysis of neologism related to COVID-19 in the context of selected mass media. This research study deals with analyzing the processes of word formation used in the creation of new words during COVID-19 pandemic. The findings of the study highlight the use of different types of word formation processes as identified in the creation of COVID-19 terminology particularly in English language. The findings of the research also highlight blending and compounding processes to be the most productive word formation processes amongst all.

The research work of Sultana & Hassan (2023) attempts linguistic analysis of COVID-19 neologisms which were prevalently used in Bangladesh. This study focuses on analyzing those terms and expressions that occurred globally as well as specifically in Bangladesh. The focus was on analyzing the terms that were quite frequent in their country. They also explored various types of word formation processes through which the COVID-19 related terms got created. The research findings reveal that almost 40 terms were quite prevalent in Bangladesh. Out of 40, 20 terms emerged for describing the disease and the other 20 words were used to address the social impact of the pandemic in the society and on human beings. The outcome of the study highlights the dynamic nature of language. The findings of the study also suggest significant impact of COVID-19 on the use of English language in Bangladesh. However, the study only attempts to analyze the frequency of the words occurred during pandemic but didn't provide the morphological structure of the terminologies.

Next, Al-haj Eid *et.al* (2024) provide morphological study of neologisms in mass media, with specific reference to CNN-TV programs during COVID-19. The findings of the research exhibit eight morphological processes involved in the formation of COVID-19 neologisms which include compounding, affixation, blending, acronym, loan words, back formation, conversion, and clipping. The findings of the research state that compounding appears to be one of the most productive morphological processes in neologisms of COVID-19 terminologies.

The research of Dauda (2024) is a bit different from the research of others as it does morpho-syntactic analysis of COVID-19 terms, particularly compound words reported by World Health Organization (WHO). The researcher analyzes compound words morphologically and also provides tree diagram of morphologically analyzed terms. The researcher highlights that compound words of COVID-19 are made up of free and bound morphemes and most of these belong to the grammatical category of Noun. The findings of the research also highlight compounding to be the most influential process in neologisms of COVID-19 terms and expressions.

2.1 Research Gap

Many researchers have attempted to analyze neologisms of COVOD-19 from linguistic and morphological point of view. Majority of the research works have focused upon identifying and analyzing word formation or the morphological processes that are involved in the formation COVOD-19 terms and expressions. Many researchers have also concluded in their analysis that affixation, borrowing, compounding, blending, coinage and abbreviations are some of the major word formation or morphological processes that are responsible for the formation or creation of COVID-19 terminologies. The frequency of the morphological or word formation processes have also been provided by many researchers and many of them have suggested compounding to be one of the most productive morphological processes in neologisms of the terms of COVID-19. This survey of previous research works reveal the fact that many of the research works have been conducted on COVID-19 terms or expressions that appeared globally and a very few and significant works have been attempted to analyze COVID-19 terms that were specific to a particular country.

In support of the above studies, and to fulfill the gap as such no significant research work appears to be conducted in Indian context, the present research work aims to analyze terminology of COVID-19 that emerged in India during the outbreak of the pandemic. Like other studies, the present research work also tries to analyze and validate the frequencies of the morphological processes that were prevalent in forming new words and terminologies associated with COVID-19. Although the previous research works have significant bearing on the present research work but it tries to look at the phenomenon from a different perspective.

2.2 Aims & Objectives

The aims and objectives of the present research work are the followings:

a) The present research work aims to analyze COVID-19 terminologies linguistically.

b) In fact, it tries to identify and analyze various types of morphological processes especially word formation processes through which COVID-19 terminologies have been created.

c) Through the linguistic analysis, the present research work also attempts to provide internal structure of the COVID-19 terminologies.

d) Finally, this research work aims to contribute something meaningful to the field of Morphology and Linguistics.

3. Methodology

The data for the current research work were collected from various sources of print and mass media which included newspapers, magazines and social media plat form like face book. The types of newspaper for taking samples of COVID-19 terminologies included both Hindi and English newspapers which included e-newspapers of Hindustan Times, Nav Bharat Times, Dainik Bhaskar and some popular magazines like India Today and The Guardian Weekly. Besides, the social media plat form like face book was also visited and CIOVID-19 related terms were searched and collected for the current study.

The sample size of the study consisted of approx. 50 COVID-19 related terminologies. They were collected, identified, segmented and analyzed on the basis of morphological processes.

The study follows a descriptive framework of the linguistic study and no statistical or corpus analysis tools were used for the analysis of the data. The methodology of the present study can be understood through the following procedure:

3.1 Procedure

Step 1: Reading of various types of newspapers and listing of COVID-19 terminologies.

Step 2: Searching of COVID-19 terminologies on social media platforms such as face book and listing of COVID-19 terminologies.

Step 3: Making a list of all the collected COVID-19 terminologies (approx 50 terminologies)

Step 4: Segmentation of the terminologies as per morphological processes such as affixation, compounding, and blending etc..

Step 5: Analyzing internal structure of the segmented terminologies and providing discussion on them

3.2 Data Analysis

This section provides morphological analysis of the data collected. Various types of word formation processes have been identified and analyzed through which the creation of COVID-19 terminologies have occurred during the pandemic period. The various types of word formation processes that have been identified and analyzed include Affixation (Inflectional and Derivational processes), Compounding, Blending, Coinage, Borrowing, and Abbreviation & Acronyms. The detail analysis along with examples of each of these word formation processes have been provided below:

3.3 Affixation

Affixation is a process in which new words are created through attaching derivational bound morphemes like prefixes & suffixes to already existing words. Many words are created through the process of affixation and this is one of the popular processes of making a new word. When Inflectional or Derivational suffixes are attached with the root or base form of words, the grammatical categories such as gender, number, person, case, and

degree of the root words are changed and the meanings of the root words are also changed. Some of the examples which have been created using the process of affixation are given below:

Table 1. Examples of affixation in neologisms of COVID-19

S. No.	Root /Base Words	Affixes attached	New Words Created
1	Active Case	-s	Active Cases
2	Index Case	-s	Index Cases
3	Sanitize	-tion	Sanitization
4	Isolate	-tion	Isolation
5	Boost Dose	-er	Booster Dose
6	Vaccine	-ate	Vaccinate
7	Vaccinte	-tor	Vaccinator
8	Vaccinte	-tion	Vaccination
9	Society	-al	Social
	Distance	-ing	Distancing
10	Corona	-nial	Coronnial

In the above Table 1 mentioned examples we can see that affixes have been attached with the root or the base forms of the words in order to create new words. Here in the examples like '*Active Cases*' and '*Index Cases*' inflectional suffix '*–s*' has been attached with the root form of word 'C*ase*' whereas in other examples (3-10) derivational suffixes have been attached with the root or the base form of the words. It can be observed that not only the forms of the existing words change but meaning also changes after the process of affixation in creation of new words.

3.4 Compounding

Compounding is one of the morphological processes through which new words are created with combining two words together. Compounding occurs in the process of making longer words. Compounds are classified based on synthetic accounts, based on the formation patterns/structure of the whole or component part of compound constructions. Some of the examples of compound words that have been identified in the list of the COVID-19 terminologies are given below:

Here, in the above examples, the compound words have been created with putting two words together. In the example of compound word '*Lockdown*', the word 'Lock' is from the word category of adjective while the word 'down' belongs to the word category of preposition. The compound words like '*Face Mask*', '*Face Shield*', '*Hand Wash*' and '*Booster Dose*' have been created with combining two words from the same grammatical category i.e. [Noun +Noun] whereas in examples from 5-10 the pattern of compound formation is different. In these examples words are formed combining words from the two different categories such as [adjectives + Noun]. In the last example, the compound word '*New Normal*' has been formed with combining two words from the category of adjective i.e. [Adjective +Adjective]. From the analysis of all of the examples discussed above, it can be summarized that compound words are created by combining two words from the same category or words from the different categories.

3.5 Blending

Blending is also one of the word formation processes that refer to the fusion of two words to create or to form a new word. In the process of blending two words are blended in such a way that only the first syllable of the

first word is generally attached with the entire part of the next word. The literature suggests different name of this process such as telescope words. Some of the examples of blending that have been identified in COVID-19 related terminologies have been provided table 2 below:

Table 2. Examples of compounding in neologisms of COVID-19

S. No.	Word 1+ Words 2	Compound Words	Morphological Structure
1	Lock + Down	*Lockdown*	Noun + Preposition
2	Face + Mask	*Face Mask*	Noun + Noun
3	Face + Shield	*Face Shield*	Noun + Noun
4	Hand + Wash	*Hand Wash*	Noun + Noun
5	Booster + Dose	*Booster Dose*	Noun + Noun
6	Complete + Lockdown	*Complete Lockdown*	Adjective + Noun
7	Self + Quarantine	*Self - Quarantine*	Adjective + Noun
8	Surgical + Mask	*Surgical Mask*	Adjective + Noun
9	Self + Isolation	*Self - Isolation*	Adjective + Noun
10	Social + Distancing	*Social Distancing*	Adjective + Noun
11	Super +Spreader	*Super Spreader*	Adjective + Noun
12	New + Normal	*New Normal*	Adjective +Adjective

Table 3. Examples of blending in neologisms of COVID-19

S. No.	Fusion of Words	Blended Words
1	Corona + Vaccine	*Covaxin*
2	Covid + Idiots	*Covidiots*
3	Corona + Win	*Cowin*
4	Covid + Shield	*Covishield*
5	Corona + Vocation	*Coronacation*
6	Quarantine+Teams	*Quaranteams*
7	Corona+obidient	*Covidient*

In all of the examples given above table 3, it can be observed that these COVID-19 related terms have been created through the process of blending where the first syllable of the first words have been attached with the entire part of the second words. For example, the word '*Covishield*' has been created with the blending of the first syllable of the word '*Covid*' i.e. '*Covi*' with the word '*shield*'.

3.6 Coinage

This word formation type allows us to create a completely new lexical item either deliberately or accidentally (Yule, 2020). Thus, coinage is one of the morphological processes of forming novel words. Many words have been coined during the pandemic period that refers to the various aspects of the COVID-19 pandemic. Some of the words that have been coined intentionally or unintentionally during the pandemic are discussed table 4 below:

Table 4. Examples of coinage in neologisms of COVID-19

S. No.	Coined words	Meaning of the Coined words
1	COVID-19	A pandemic caused by corona virus
2	Omicron	A variant of corona virus
3	Contact tracing	Trace or identify people who may have infection

The above-mentioned examples illustrate that these are the new terms that have been coined during Corona outbreak and before the pandemic these terms never existed. Thus, with the outbreak of COVID-19, a lot of change has taken place with respect to language.

3.7 Borrowing

Borrowing, in morphology, refers to the kind of word formation process that takes a word from one language and is used in another language. Words borrowed during COVID-19 pandemic were popularly used to refer to various aspects of the pandemic. One of the best examples of borrowing is the borrowing of the word 'Corona' which is derived from the Latin language which means 'Crown' like ring of bumps on the surface of each virus particle. The word 'Omicron' is borrowed from Greek word for 'little o' is distinct from the term 'Omega' and the word 'Vaccine' comes from Latin language 'Vacca' which means 'cow'. During the period of pandemic these terms had become to be the part of the daily local language by the people. Also, these words or lexemes borrowed from other languages have become the jargon related to the pandemic. Now, people can easily understand what theses terms mean.

3.8 Abbreviation and Acronyms

Abbreviation and Acronyms are both shortened form of word or Phrases. An Abbreviation is actually the short version of a longer word whereas an Acronym refers to a form of words that are created by using only the first letter of several words or phrase. The examples of abbreviation and Acronyms can also be traced back to the COVID-19 terms that were in use during pandemic. Consider some examples listed table 5 below:

Table 5. Examples of abbreviation and acronyms in neologisms of COVID-19

S. No.	Abbreviation and Acronyms	
1	WFH	Work From Home
2	PPE Kit	Personal Protective Equipment Kit
3	PUI	Patient Under Investigation
4	COV-PPM	COVID-19 Pandemic Policy Monitor
5	COVID-19	Corona Virus Disease 2019
6	SARS-COV2	Sever Acute Respiratory Syndrome Corona Virus 2
7	MERS	Middle East Respiratory Syndrome

4. Findings & Discussion

COVID-19 pandemic has not only changed the scenario of the world but it has also impacted the present scenario of the language use. During pandemic period, lots of new words or terminologies have come into existence which never existed before. The terminologies like Covideo, Covaxin, Self-quarantine, and Corona have not only been created rather these terms have also enriched the vocabulary of English language. The study has identified morphological processes like *Affixation, Compounding, Blending, Coinage, Affixation, Abbreviation* and *Acronyms* through which COVID-19 terminologies have been created.

The findings of the study reveal that most of the terms that have been in use during the pandemic period belong to the morphological processes of affixation, compounding, blending and Abbreviations & acronyms. Out of all these, Compounding is the most productive word formation processes. The frequencies of the morphological processes that are involved in the creation of COVID-19 terminologies are provided Figure 1 below:
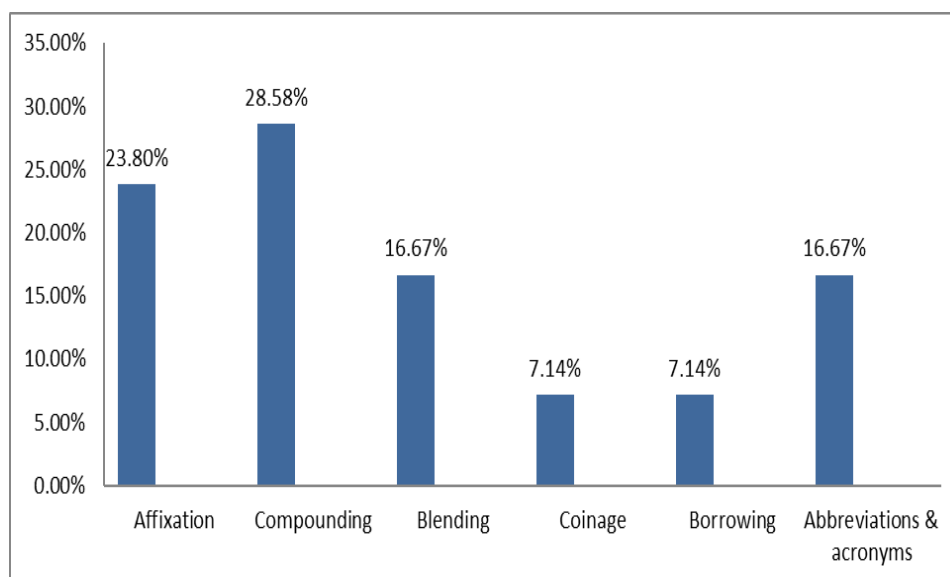
Figure 1. Frequencies in morphological processes of COVID-19 terminologies

The findings of the study also highlight the fact that most of the terminologies that have come into existence belong mainly to the nominal and verbal categories of the words. The study also highlights the fact that these terminologies were very much prevalent in Indian mass media. Many of the terminologies may be common but the certain terminologies like 'Blursday', 'Covexit', 'maskne', 'Quarantini', 'Doom-scrolling', and 'Zoom-bombing' (Hussein 2023: 367) were not in use in Indian mass media. Due to COVID-19 pandemic, lots of new words have been added to the lexicon of English language specifically to refer to the action or experiences of the people during pandemic.

5. Conclusion

The morphological processes that play significant role in the formation of COVID-19 terminologies include *affixation, compounding, blending, coinage, borrowing* and *abbreviations and acronyms*. Thus, this morphological analysis of COVID-19 terminologies exhibits the dynamic nature as well as the vitality of English language. This shows that change in situations not only affect the life of the human beings but bring change to the language of the society. This study significantly contributes to the morphological study of English language by analyzing the morphological processes that involved in the creation of the COVID-19 terminologies. The present study may suggest for examining cross-linguistic morphological changes in Indian languages due to COVID-19 pandemic. The limitation of the present study is in terms of dealing only with morphological processes of English language.

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Author Contribution Statement

Both the authors equally contributed to the work and approved the final version of the manuscript.

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Yes