

Research article

Modal Auxiliary Verbs founds in Medical Sciences: Frequency, Structure, and Function

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Abstract.

This paper dealt with the frequent use of modal auxiliary verbs in Corpus of Medical Sciences article regarding coronavirus. The modal auxiliary verbs mentioned as the data were can, could, will, would, may, might, shall, should, and must. Each data collected were taken from Medical Sciences by using AncConc application. The research method was descriptive analysis; the present writers describe every data related to their function in each clause. The findings were related to the highest frequency follow the modal auxiliary verbs. From the 6.071 concordance hits data, it was found the verb can (1.505 hits) is the most frequently used, it is followed by the verb may (1.370 hits), the verb should (1.068 hits), the verb could (755 hits), the verb will (569 hits), the verb might (377 hits), the verb would (241 hits), the verb must (180 hits), and the verb shall (6 hits). This study had also revealed structure of each of modal auxiliary verbs found in the Medical Sciences From the data analyzed, it was also reported that the modal auxiliary verb can has the highest frequency.

Keywords: modal auxiliary verb, corpus, medical sciences article, AntConc application

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1. INTRODUCTION

Many researchers do their research on Linguistics in most languages including English. It is limited research on specific Linguistic topic such as verb, especially, in modal auxiliary verbs. Modal auxiliaries or modals, such as can, could, may, might, must, ought to, shall, should, will, and would, do not change form for different subjects. There is also a separate section on the Modal Auxiliaries, which divides these verbs into their various meanings of necessity, advice, ability, expectation, permission, possibility, etc., and provides sample sentences in various tenses. See the section on Conditional Verb Forms for help with the modal auxiliary would. The shades of meaning among modal auxiliaries are multifarious and complex. Most English-as-a-Second-Language textbooks will contain at least one chapter on their usage. The analysis presented in this work is based on the classification and values of modal auxiliary verbs described in traditional


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English grammars (Jones, C. & Walter, 2015). Modal verbs have been grouped into two groups according to their frequency of use. The first group comprises the modal verb can and its past form could, which are mainly used in English to express ability, permission and possibility. The second group includes other modal auxiliary verbs mainly used to indicate obligation or necessity (must, have to, should, need to, ought to), permission or possibility (may, might), and intention, prediction or probability (would).

Previous research is reported that (Hsieh, 2015) did his research on modal auxiliary verbs. Verstraet's research discusses the system of Modal Auxiliary in English. He concerned the difference of subjective and objective modality on English modal auxiliaries. Hsieh did his research on Chinese language concerning modal verbs and modal adverbs based on Semantic source. On the other hand, (Kennedy, 2002) did his research related to British National Corpus (BNC) as the source of the classification of modal verbs. He did his research to identify the distribution of modal verbs in it. He offered nine different types of patterns consisting modal verbs and he argued that the nine different patterns found in British National Corpus related to 14 different types of modal verbs. Further he concluded that the modal verb will accounts for almost 23% of all modal tokens, followed by would, can, and could, but it was different from this research. This research was found that high frequency of modal auxiliary verb is "can" and followed by "should" and "may". This paper is preliminary research, and the aims of the research are to describe the frequency and function of modal auxiliary verb found in 204 articles in 11 journals of medical sciences regarding coronavirus. Based on the two aims of the research mentioned, the present writers collected and identified the data by application AntConc version 3.5.8. The data taken are limited on modal auxiliary verbs; they are can, could, will, would, may, might, shall, should, and must later called central modals. In Quirk et al. (1992), followed by (Mukundan, J., & Khojasteh, 2011) and also mentioned by (Kennedy, 2002) that the 'central' modal is considered to be will, would, can, could, may, might, shall, should, and must or sometimes called as auxiliary modals. In line with Quirk et al. (1992), (Kennedy, 2002) mentioned in the nine central modals is found a small group of 'marginal modals'. The marginal modal is ought to, need to, used to and dare which can act like modals and sometimes seem like main verbs. There is another group of expression known as 'semi-modals', which function like modals – (had) better, (have) got to, be about to, be going to, and be supposed to. This present paper only focuses on the nine 'central modals': will, would, can, could, may, might, shall, should, and must, and excludes both 'marginal modals' and 'semi-modals'.

2. METHOD

The development of analysis tools easily available to researchers has led to a new impetus of corpus linguistics as they facilitate the reliable study of the linguistic features that characterize the different varieties of English (S. M. Fitzmaurice, 2015). The research method applied in this research is descriptive analysis. The corpus that is referred as the data are obtained from 204 articles in medical sciences regarding coronavirus. The data obtained in this present paper are limited on the clauses containing modal auxiliary verbs and every data collected is described one by one. Each data has different function from one to another, since it has different structure of each. The modal auxiliary verbs used in this research are nine modal auxiliary verbs which categorized into 'central modals' as keywords. The nine keywords as the modal auxiliary verbs (will, would, can, could, may, might, shall, should, and must) are inputted one by one to application AntConc version 3.5.8.

3. RESULT AND DISCUSSION

Modal auxiliary verbs discussed in this present paper is 'central' modals; they are nine central modal verbs. The central modal verbs are will, would, can, could, may, might, shall, should, and must. From the collected data, totally the present writers found 6.237 concordance hits. The examples of the data are described in the following.

TABLE 1: the usage of modal auxiliary modal in Medical Sciences.

found that the combination of interferon with steroid drugs can accelerate lung repair and in-crease oxygen survival levels.
A structured- triage approach incorporating triage admission criteria that can adapt to the scale of crisis
meaning that PCR results can assist clinical diagnosis and evaluation
he subunit vaccine based on RBD can avoid ADE.

From the total number mentioned, the following is a description of the frequency of the nine modal auxiliary verbs found in medical sciences as presented in the following table.

3.1. Modal Auxiliary verb: Can

Verb *can* is also one of the modal auxiliary verbs and it is reported that it is the most frequent use in medical sciences article. The number of the verb can usage is 1.505

TABLE 2: the frequency of the nine modal auxiliary verbs.

No	Modal Verbs	Auxiliary	Concordance Hits	Plot Hits
1	Can		1505	162
2	May		1370	167
3	Should		1068	130
4	Could		755	161
5	Will		569	138
6	might		377	92
7	would		241	93
8	Must		180	71
9	Shall		6	2
Total			6071	1016

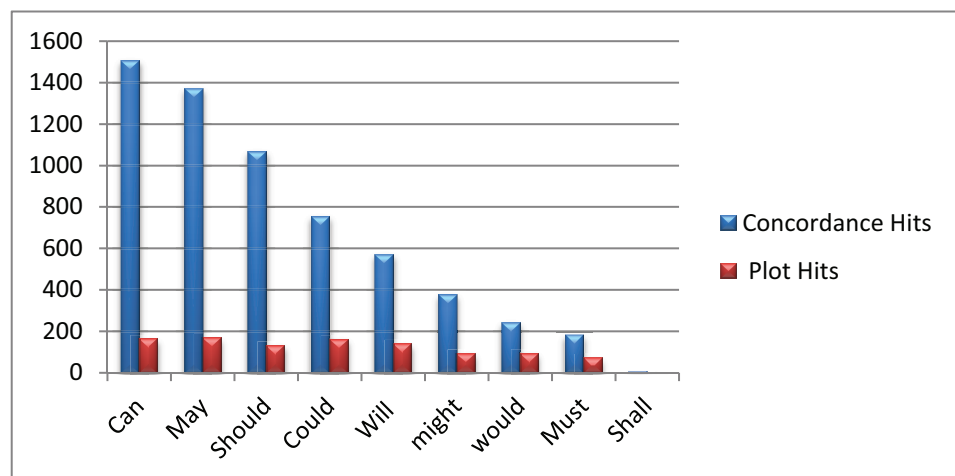


Figure 1

data from 6.071 data which is found in 204 articles. The following are the examples of the data containing modal auxiliary verb *can* and the elements follow the verb *can*.

TABLE 3

can + V	Immune responses following SARS-CoV-2 infection can be a double-edged sword.
can + adv The guide RNA can accurately recognize it and activate the Cas13a protein to bind to it. Cas13a is a very interesting enzyme...
can + not+ V	... the difficulty where new synthesized drug cannot be applied immediately to patients, “conventional drug in new use” becomes a feasible solution.
can + adj	How can airborne transmission of COVID-19 indoors be minimized?

The examples of the data containing modal auxiliary verb can above shows that the verb can only has four different types of elements. Function of all examples of modal auxiliary verb to express ability (in the sense of being able to do something or knowing how to do something).

3.2. Modal Auxiliary verb: could

Verb *could* as one of the nine modal auxiliary verbs found in the data as the fourth frequent use in medical science articles. The number of the verb *could* usage is 755 data from 6.071 data which is found in 204 articles. The following are the examples of the data containing modal auxiliary verb *could* and the elements follow the verb *could*.

TABLE 4

could + Vthe peptide binding at another site could act to enhance enzyme activity (and so act as an agonist to viral entry)
could + advnAbs anti-MERS-CoV could accordingly be found in camels....
could + not + Vthat a German shepherd pet dog died (the cause of death could not be determined as the owner declined to conduct an autopsy)

From the examples above, it is described that there are three types of the elements following the verb *could*. The category is divided into two general types: statement and negative form. Function of all examples of modal auxiliary verb to express present possibility.

3.3. Modal Auxiliary verb: Will

Verb *will* as one of the nine modal auxiliary verbs found in the data as the fifth frequent use in medical science. The number of the verb *will* usage is 569 data from 6.071 data which is found in 204 articles. The following are the examples of the data containing modal auxiliary verb *will* and the elements follow the verb *will*.

From the examples above, it is described that there are three types of the elements following the verb *will*. The category is divided into two general types: statement and negative form. Function of all examples of modal auxiliary verb can be used to express willingness.

TABLE 5

will + V	These likely will accelerate the development of drugs and/or vaccine against SARS-CoV-2.
will + adv + Vthe time of acquisition, as well as the reagents used for test, which will adversely affect the test results and decrease the positive rate.
will + not + Vwe will not discuss the role of vaccines....

3.4. Modal Auxiliary verb: Would

Verb *would* as one of the nine modal auxiliary verbs found in the data as the seventh frequent use in medical science. The number of the verb could usage is 241 data from 6.071 data which is found in 204 articles. The following are the examples of the data containing modal auxiliary verb *would* and the elements follow the verb *would*.

TABLE 6

would +Vcreate another predictive model which would act as a precedent for the future (if a similar scenario arises).
would + adv +V	Expanded testing capacity would also facilitate more widespread surveillance and containment of...
would + not +Vemployed here would not detect asymptomatic transmission.

From the examples above, it is described that there are three types of the elements following the verb *would*. The category is divided into two general types: statement and negative form. Function of all examples of modal auxiliary verb can be used also to express willingness.

3.5. Modal Auxiliary verb: Should

Verb *should* as one of the nine modal auxiliary verbs found in the data as the third frequent use in medical science. The number of the verb should usage is 1068 data from 6.071 data which is found in 204 articles. The following are the examples of the data containing modal auxiliary verb *should* and the elements follow the verb *should*.

From the examples above, it is described that there are three types of the elements following the verb *should*. The category is divided into two general types: statement and negative form. Function of all examples of modal auxiliary verb can be used also to express give advice or make recommendations.

TABLE 7

should + V	Patients with respiratory symptoms should adhere to respiratory hygiene, cough etiquette, and hand hygiene.
should + not + V	Pushing should not be delayed because it prolongs time to delivery and increases
should + adv	...suspected or confirmed cases should ideally be isolated in a negative pressure airborne infection isolation room ...

3.6. Modal Auxiliary verb: Shall

Verb *shall* as one of the nine modal auxiliary verbs found in the data as the last frequent found in medical science. The number of the verb should usage is 6 data from 6.071 data which is found in 204 articles. The following are the examples of the data containing modal auxiliary verb *shall* and the elements follow the verb *shall*.

TABLE 8

shall + V	A few notable limitations in this study due to the nature of the genome data shall be noted
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From the examples above, it is described that there is only one of the elements following the verb *shall*. The category is general type of statement. Function of the example of modal auxiliary verb can be used also for very formal statements, especially to describe obligations.

3.7. Modal Auxiliary verb: Must

Verb *must* as one of the nine modal auxiliary verbs found in the data as the eight frequent found in medical science. The number of the verb should usage is 180 data from 6.071 data which is found in 204 articles. The following are the examples of the data containing modal auxiliary verb *must* and the elements follow the verb *must*.

TABLE 9

must + V	... must acknowledge that randomized clinical trials in high risk pop- ...
must + adv	we must also struggle with human bias
must + not + V	...transmission through the ocular surface must not be ignored.

From the examples above, it is described that there are three types of the elements following the verb *must*. The category is divided into two general types: statement and

negative form. Function of all examples of modal auxiliary verb must be used also to express used to express obligation or give orders.

3.8. Modal Auxiliary verb: Might

Verb *might* as one of the nine modal auxiliary verbs found in the data as the sixth frequent found in medical science. The number of the verb should usage is 377 data from 6.071 data which is found in 204 articles. The following are the examples of the data containing modal auxiliary verb *might* and the elements follow the verb *might*.

TABLE 10

might + V	...that might affect the safety and storage of gametes. As noted,...
might + adv+ V	after immunization with inactivated vaccine against SARS-CoV-2 might also happen...
might + not+ adv	contam-ination might not directly damage the heart

From the examples above, it is described that there are three types of the elements following the verb *might*. The category is divided into two general types: statement and negative form. Function of all examples of modal auxiliary verb *might* be used in formal situations, and also to express permission in the sense of being allowed to do something.

3.9. Modal Auxiliary verb: May

Verb *may* as one of the nine modal auxiliary verbs found in the data as the second frequent use in medical science. The number of the verb *may* usage is 1.370 data from 6.071 data which is found in 204 articles. The following are the examples of the data containing modal auxiliary verb *may* and the elements follow the verb *may*.

TABLE 11

may + V	As a result, the number of infected persons requiring hospitaliza-tion may go beyond the capacity of a nation's health-care facilities
may + Nthat coronavirus infection may impact the male reproductive tract.
may + PP+ N	he reason may in part be the historical difficulty in synthesizing longer peptides without side

The examples of the data containing modal auxiliary verb *may* above shows that the verb may only has three different types of elements. Function of all examples of modal auxiliary verb to possibility.

4. CONCLUSION

After collecting, identifying, and analyzing the data, the present writers, finally, could describe two different findings. The findings from the research uses of corpus based have shown several valuable insights. The first conclusion is the frequency and the order of the rank of modal auxiliary verbs found in the Medical Sciences has been revealed. The data describes how many times modal auxiliary verbs are used in the Medical Sciences have been exposed to these modal auxiliary verbs in various degrees. The second conclusion is this study has revealed the elements following each of modal auxiliary verbs founding the Medical Sciences. The modal auxiliary can have the most various element following the verb and shall has the least. Based on the result of the research, those are the important information on the use of modal auxiliary verbs and their structure in real language since the data are collected from corpus by using AntConc application version 3.5.8.

References

- [1] Guide to Grammar. Available from: <http://guidetogrammar.org/grammar/auxiliary>; Hartford; 2004
- [2] Hsieh C. Modal verbs and modal adverbs in Chinese: An investigation into semantic. Amsterdam: Benjamin Publishing Company; 2015.
- [3] Jones C, Walter D. Corpus linguistics for grammar. London: Routledge; 2015.
- [4] Kennedy G. Variation in distribution of modal verbs in the British National Corpus. R. Reppen. Amsterdam: John Benjamins Publishing Company; 2002.
- [5] Mukundan J, Khojasteh L. Modal auxiliary verbs in prescribed Malaysian English textbooks. *English Language Teaching*. 2011;4(1):79–89.
- [6] Fitzmaurice SM, Biber D, Reppen R. Using corpora to explore linguistic variation. *John University System of Taiwan Working Papers in Linguistics*. 2015;1(1):31–58.