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# Grammatical aspects of academic writing in the pharmaceutical articles

Статья посвящена грамматическому аспекту академического дискурса в целом и в области фармацевтических исследований в частности. Авторы фокусируются на следующих грамматических конструкциях: пассивный залог, сложное подлежащее, сложное дополнение, герундий, причастия (I, II) и оборот «there is/are». Гипотеза исследования заключалась в том, что выбранные грамматические конструкции являются наиболее характерными для академического письма. Целью исследования было определение частоты использования каждой конструкции, и выявление преобладающей. Материал исследования – 5 рандомно выбранных научных статей по фармацевтической тематике. Методы исследования включили опрос, метод сплошной выборки, сравнение и сопоставление, элементы статистического анализа. Гипотеза исследования подтвердилась частично: преобладающая грамматическая конструкция выбранных статьях – пассивный голос, в то время как использование сложного подлежащего и сложного дополнение ограничено.

***Ключевые слова*:** академический дискурс, грамматика английского языка, грамматические конструкции, научный текст, частотность слов

The article is devoted to the grammatical aspect of academic discourse in general and in the field of pharmaceutical research in particular. The authors focus on the following grammatical constructions: passive voice, complex subject, complex object, gerund, participles (I, II), and the expression 'there is/are'. The hypothesis of the research was that the selected grammatical constructions are the most characteristic of academic writing. The aim of the study was to determine the frequency of use of each design and to identify the prevailing one. Research material – 5 randomly selected scientific articles on pharmaceutical topics. The research methods included survey, continuous sampling, comparison and comparison, elements of statistical analysis. The hypothesis of the study was partially confirmed: the predominant grammatical structure of the selected articles is a passive voice, while the use of a complex subject and complex object is limited.

***Keywords*:** academic discourse, English grammar, grammatical constructions, scientific text, word frequency

In the modern world, many discoveries occur in a range of fields. The right direction of discovery development is unable without international communication and

information exchange. The science, being the knowledge without borders, is constantly forging ahead. The professionals in any field of knowledge, including pharmacy, publish their scientific articles to discuss the existing controversy, to share the new information, to present the results of the research work. English is considered the language of international academic communication. However, a young researcher may face difficulties in translating and presenting data in a foreign language in the proper way. That is why learning English for academic purposes is of great necessity. Communication competence is an essential skill in this 21st century. It engages the professionals in international academic inquiry and provides the opportunity of participating in broader scientific events.

The term 'communication competence' was developed in 1972, by D. Hymes [4] and is defined as 'the knowledge that speakers and listeners have in order to communicate appropriately in different social contexts' [7]. Currently, the communicative competence is subdivided into several competencies: linguistic (language knowledge); discursive (the mastery of various types of discourse in communicative situations); pragmatic (ability to achieve a communicative goal); strategic (awareness of the process of creating written texts, overcoming communicative failures, and the ability to avoid ambiguity and failures in case of lack of linguistic means); sociocultural (knowledge of moral and behavioral norms) [3]. In our work, we assume the academic writing skill to be a substantial part of linguistic and strategic competencies.

Academic writing is a significant part of professional communicative competence and represents the particular style of written speech which described as 'planned and focused, structured, evidenced, formal in tone and style'[6]. Scientific articles must have not only factual accuracy that is provided by appropriate scientific terminology but also a certain impersonality of speech conditioned by the objectivity of the authors striving to pay attention to their work and data rather themselves. Avoiding ambiguity is the main reason for representing the information in a certain strict style. The content has to be conveyed clearly and concisely, the vocabulary has to be relevant and provided with explanations when needed, the linking words should be used to support the flow of representing ideas [2]. In our research work, we focus on the grammar issue of academic writing in an example of pharmaceutical articles.

Considering the tendency to a standardized speech in scientific medical and pharmaceutical texts, in particular, we hypothesized that the most prevalent grammatical constructions would be the passive voice, complex subject and complex object, gerund, participles, and subject-verb construction there is/are. Thus, the aim of our work is to select each construction and to identify the frequency of its use, as well as to determine the prevailing one.

The first stage of our research included the survey, the respondents were the students (50) of Kazan Medical State University. The survey consisted of a closed-ended question: 'which of the indicated grammatical categories do you consider to be

the most prevailing?' The answer options included: the passive voice, complex subject and complex object, gerund, participles, and subject-verb construction there is/are. The respondents had to arrange the following grammatical structures according to the word frequency in the increasing order.

The results of the survey were as follows: passive voice with the most voices (27) is the most frequent grammatical construction, while the least frequent one (3) – complex subject.

The second stage of our research was based on the continuous sampling method. The research material consisted of 5 scientific articles with different publication sources, which were randomly chosen. Each is given under serial number below which is determined by the necessity to further represent the findings.

1. "Plants and human health in the twenty-first century" [8];
2. "Green Tea – An Antioxidant Mystic Herb" [5];
3. "Vaccines for Use in Finfish Aquaculture" [9];
4. "Effects of Palm Oil Colorant on the Hepatic Functions of Albino Rats" [10];
5. "Effect of Biofield Treatment on Spectral Properties of Paracetamol and Piroxicam" [11].

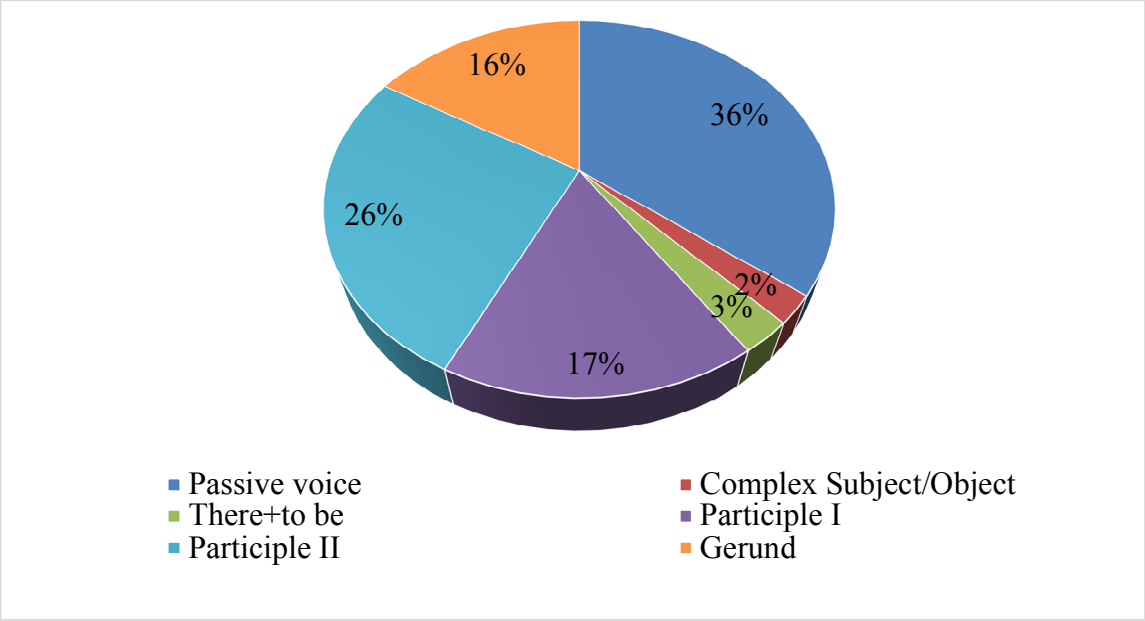
We counted the total quantity of each of the chosen construction in each of 5 articles in order to identify the frequency. The results are shown in the *Table*.

*Table*

**Quantitative frequency of use of chosen grammatical constructions**

| ***The number of an article*** | ***Passive voice*** | ***Complex subject/ object*** | ***Gerund*** | ***Participles*** | | ***There + to be*** |
|---|---|---|---|---|---|---|
| *1st article* | 70 | 2 | 36 | 35 | 64 | 3 |
| *2nd article* | 34 | 2 | 19 | 16 | 55 | 5 |
| *3rd article* | 49 | 7 | 8 | 14 | 37 | 5 |
| *4th article* | 38 | 3 | 20 | 34 | 17 | 7 |
| *5th article* | 64 | 3 | 35 | 21 | 17 | - |

The third stage implied the calculation of the total number of each construction and their comparison. The results are shown in the *Picture*.




*Picture*. Frequency of chosen grammatical construction in percentage

Thus, the survey results correlate with the results of data obtained using a continuous sampling. However, our hypothesis was not fully confirmed, namely: the passive voice is the prevailing grammatical construction (36 %) of the ones we have chosen in our work, while the assumption that the complex subject and complex object are also often used was not confirmed – the total number of this construction was the lowest – **2%.**

As mentioned above, objectivity is one of the main peculiarities in academic writing. The function of the Passive Voice is to concentrate on the primary issue of the statement (the phenomenon or the event described) rather than the author. So that it is widely used in academic writing.

Participles and participial constructions are also widely used in academic writing. We've identified that Participle II is more common as an attribute giving a precise characteristic of an object or the phenomenon. Participle I is often used as the adverbial modifier, describing the processes like the chemical reaction or physical phenomenon, and determining the certain conditions.

The frequency of use of gerunds is uneven, and more often they are used in a simple form.

The construction 'there + to be' functions as localizer, and is used when it is necessary.

Even though Complex Subject and Complex Object can be used to make complex sentences less cumbersome, the results of our research work show that they were neglected.

Thus, the study has shown that the most commonly used construction is passive voice while the least – complex subject/object. This result might be explained with the psychological aspect, which is the individual style of the formulation and

conveying the thoughts. So that the word choice and grammatical representation may vary. Besides, we suggest that our present findings are typical for the non-authentic texts over authentic ones. In the future, we are going to compare widely used grammatical constructions of authentic articles with ones of non-authentic texts.

The literature review and findings of our research contribute to the linguistics theory and can be useful for the students who learn academic English and researchers in this area.

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