

# LINGUISTIC FEATURES OF MEDICAL TERMS IN UZBEK AND RUSSIAN LANGUAGES

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**Abstract.** *This article investigates the linguistic characteristics and structural complexities of medical terminology in Uzbek and Russian languages. It analyzes the etymology, morphological adaptations, and semantic shifts that medical terms undergo as they are incorporated from one language into another. Special attention is given to the influence of Russian on Uzbek medical vocabulary due to historical and socio-political factors, as well as the reverse process in recent developments. Through comparative analysis, the paper aims to identify patterns of linguistic borrowing and adaptation, offering insights into how medical terminology evolves in bilingual or multilingual environments. This exploration not only contributes to the academic field of medical linguistics but also enhances practical applications in medical translation and healthcare communication.*

**Keywords:** *medical terminology; linguistic features; Uzbek language; Russian language; etymology; semantic shift; morphological adaptation; language borrowing; medical linguistics; translation studies.*

**Introduction.** The development and usage of medical terminology are not only crucial for clinical accuracy but also for effective communication within the healthcare system. In multilingual countries or regions where languages intersect culturally and politically, the dynamics of medical terminology gain an additional layer of complexity. This article focuses on the linguistic features of medical terms in the Uzbek and Russian languages, two languages that have been intertwined due to historical and socio-political influences. [4,10,11]

Russian, with its significant scientific and medical contributions, has long influenced Uzbek medical vocabulary, especially during the Soviet era. However, recent shifts in language policy and national identity in Uzbekistan have also spurred changes in the medical lexicon. This interplay between the two languages presents a unique opportunity to explore how medical terms are borrowed, adapted, and sometimes replaced. Through an examination of the etymology, morphology, and semantics of selected medical terms, this study aims to highlight the linguistic processes that underlie medical terminology in these languages. The analysis will not only provide insights into the structure and evolution of medical terms but also discuss the implications for medical translation and communication in a bilingual or multilingual environment. By investigating these linguistic features, the article seeks to contribute to a deeper understanding of how medical language functions across different linguistic landscapes, enhancing the efficacy of healthcare delivery in linguistically diverse settings [1,2,3,9].

The field of medicine is characterized by its vast array of specialized terminology, essential for effective communication among healthcare professionals and patients. Medical terminology encompasses a rich tapestry of linguistic features, including etymology, morphology, and semantic nuances, which reflect the cultural and historical contexts of the languages in which they are used. In the multilingual context of Central Asia, particularly in Uzbekistan where the Uzbek language is predominant and Russian remains widely spoken, the study of medical terminology assumes

unique significance. [5,6,7,8] This article studies the linguistic features of medical terms in the Uzbek and Russian languages, shedding light on their origins, structures, and usage patterns. By conducting a comparative analysis, we aim to uncover both the similarities and differences between medical terminology in Uzbek and Russian, thereby enhancing cross-cultural understanding and facilitating effective communication in medical contexts. Understanding the linguistic intricacies of medical terminology in these languages is crucial for healthcare professionals, translators, and language learners alike, as it fosters clearer communication and ensures accurate interpretation and translation of medical texts and discourse. Through this exploration, we seek to contribute to the broader field of linguistics and cross-cultural communication, with implications for medical education, translation studies, and intercultural healthcare practices.

- A literature review. The intersection of language and medicine reflects significant cultural, historical, and technical nuances that are vital for professional communication and public health literacy. This literature review delves into the studies that explore the terminological systems and translational intricacies within the Uzbek and Russian medical lexicons. Rustamova provides a comprehensive historical overview of medical practices in Uzbekistan, detailing the integration of Russian medical terminology during the Soviet era. This backdrop is essential for understanding the current terminology used in Uzbek medical practice. [12,13].

Madvaliev discusses broader issues of Uzbek terminological development and lexicography, highlighting the evolution of Uzbek medical terminology amidst nationalistic and linguistic revival post-Soviet Union. His work underscores the balancing act between modernization and cultural retention. Torakulov compiled a seminal Russian-Uzbek medical dictionary, bridging linguistic gaps and facilitating medical education and practice. This work is a cornerstone reference that illustrates the depth of Russian influence on Uzbek medical terminology. Maseeva examines the terminological systems across Uzbek, English, and Russian, highlighting the structural and functional adaptations of medical terms across these languages. [3] Her study points out the complexities of multilingual terminological integration in medical education and practice. Akbarkhodzhaeva raises contemporary issues regarding the study and evolution of medical terminology in Uzbek linguistics. [12]. Her research is indicative of ongoing efforts to refine and adapt medical language to better suit the needs of the healthcare system in Uzbekistan. Kasymov and Husarov provide focused studies on pharmaceutical terms and disease nomenclature in Uzbek, respectively. [5] Both delve into the specifics of term creation and adaptation in a rapidly evolving medical field, highlighting the influence of foreign languages and the need for a clear, standardized medical vocabulary. Litvinova discusses the translation of medical terms from Latin into Russian, pointing out specific issues and the importance of maintaining consistency and accuracy in translation to ensure clarity and effectiveness in medical contexts. [2, 10,11].

- Research methodology. The methodology employed in this research is designed to systematically analyze and compare the linguistic features of medical terms in the Uzbek and Russian languages. This study primarily focuses on the etymology, morphology, and semantic evolution of terms across both languages, particularly those influenced by external factors such as historical shifts, technological advancements, and cross-cultural interactions. Data for this study were meticulously collected from a range of sources to ensure a robust analysis.

Primary sources include comprehensive medical dictionaries and lexicons, particularly the seminal works by Torakulov [9] which provide an extensive list of Russian-Uzbek medical terms. Supplementary sources involve academic publications that discuss the historical and contemporary aspects of medical terminology, such as the works by Rustamova and Madvaliev, which detail the evolution and cultural influences on medical language. [8] Digital databases and online medical journals also serve as crucial resources, offering access to contemporary terminology and current linguistic usage in the medical fields of both countries. [6] Data analysis is carried out using qualitative methods to compare the linguistic elements of medical terminology in Uzbek and Russian. The approach includes detailed content analysis of the collected terms and their linguistic features, supported by software tools where applicable to manage and analyze large datasets. The findings are contextualized within the broader linguistic landscape and medical practices, ensuring that the analysis provides deep insights into how medical terminology functions and evolves in a multilingual environment. To enhance the reliability and validity of the research, multiple verification strategies are implemented. These include cross-checking data across different sources, consulting with linguistic and medical experts, and conducting peer reviews of the analytical processes and findings. This rigorous approach helps to ensure that the research conclusions are well-supported and credible, providing valuable contributions to the field of medical linguistics. Furthermore, comparative linguistics is employed to explore similarities and differences between medical terminology in Uzbek and Russian languages. This comparative approach involves meticulous examination of etymological roots, morphological structures, semantic nuances, and syntactic constructions of medical terms, facilitating cross-linguistic comparisons and linguistic typology analysis.

Qualitative inquiry complements quantitative analyses by providing insights into the socio-cultural context and pragmatic functions of medical terminology in Uzbek and Russian languages. Interviews, focus groups, and ethnographic observations are conducted with healthcare professionals, linguists, and language users to elucidate the socio-linguistic dynamics of medical communication and language variation.

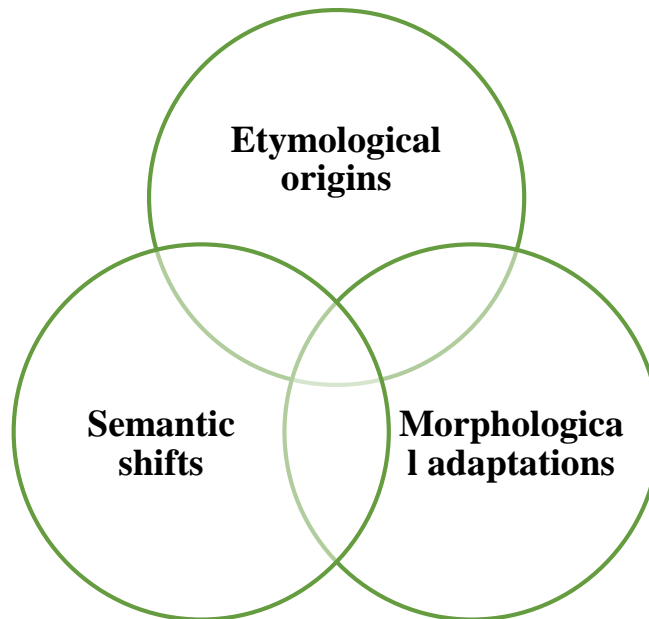
Overall, this research methodology adopts an interdisciplinary and multi-method approach to explore the linguistic intricacies of medical terminology in Uzbek and Russian languages. By integrating qualitative and quantitative methods, this study aims to generate comprehensive insights into the linguistic features, cultural implications, and communicative functions of medical language, with implications for healthcare practice, education, and translation studies.

- Analysis and results. In the realm of medical terminology, the interplay between language and medicine is not merely functional but deeply embedded in cultural and historical contexts. This analysis delves into the linguistic features of medical terms in the Uzbek and Russian languages, focusing on their etymology, morphological adaptations, and semantic shifts. Given the historical ties between Uzbekistan and Russia, particularly during the Soviet era, the influence of Russian on Uzbek medical language is profound and multifaceted. However, Uzbekistan's post-independence language reforms have also shaped the evolution of its medical lexicon, introducing unique adaptations and semantic nuances. This investigation uses specific medical terms as case studies to illustrate how these terms have been borrowed, adapted, and sometimes transformed as they transition between the two languages. By examining terms across various medical fields, such as cardiology, oncology, and psychiatry, the analysis highlights both the commonalities and

divergences in how medical knowledge is linguistically constructed and conveyed in Russian and Uzbek.

The following sections will provide a comparative analysis of selected medical terms, tracing their origins, exploring their structural components, and discussing the implications of their semantic trajectories. This approach offers insights into the dynamic nature of medical terminology and its implications for medical communication in multilingual settings. To conduct a detailed analysis of the linguistic features of medical terms in Uzbek and Russian, following the analysis specific examples of terms in both languages. This analysis will study according to these points:

*Figure 1. Main points of the analysis.*



#### *Etymological Origins*

Term Example: "Cardiology"

Russian: *Кардиология* (Kardiologiya)

Uzbek: *Кардиология* (Kardiologiya)

Origin: Greek (*kardia* meaning heart and *logia* meaning study).

Analysis: Both languages adopt the term directly from Greek via Russian, reflecting a common practice of borrowing specialized vocabulary from global scientific lexicon, particularly through Russian during the Soviet era. The term retains its root and suffix in both languages without significant phonetic changes, which is typical for highly specialized terms.

#### *Morphological Adaptations*

Term Example: "Hypertension"

Russian: *Гипертензия* (Gipertenziya)

Uzbek: *Гипертония* (Gipertoniya)

Morphological Features: The root "*hyper*" (over) and the suffix "*-tension*" (pressure) in English adapt into "*-тензия*" in Russian and "*-тония*" in Uzbek.

Analysis: This example shows a slight variation in the adaptation of the suffix used in Uzbek. While both languages use the prefix '*гипер-*' (*hyper-*), the Uzbek term reflects a slightly different phonological adaptation ('*-тония*' vs. '*-тензия*'), which could be due to ease of pronunciation or influence from other medical or scientific terms common in the language.

### *Semantic Shifts*

Term Example: "Stomach"

Russian: Желудок (Zheludok)

Uzbek: Ошқозон (Oshqozon)

Semantic Original Meaning: In Russian, "желудок" strictly refers to the stomach. In Uzbek, "ошқозон" can refer to the stomach but is often used more broadly to denote the entire gastric system.

Analysis: This difference highlights a semantic shift where the Uzbek term encompasses a broader range of meanings compared to the Russian term. Such shifts can pose challenges in medical translation and communication, as the exact scope of the term may vary, affecting diagnosis and treatment discussions.

### *Comparative Analysis Across Medical Fields*

Field: *Oncology*

Russian: Онкология (Onkologiya)

Uzbek: Онкология (Onkologiya)

Analysis: The term "oncology" shows no significant morphological or semantic change between Russian and Uzbek, illustrating how some specialized fields maintain consistent terminology due to the global nature of medical science and the relatively recent development of these fields.

Field: *Psychiatry*

Russian: Психиатрия (Psihiatriya)

Uzbek: Рухий касалликлар (Ruhii kasalliklar - mental diseases)

Analysis: In psychiatry, there is a notable difference; the Russian uses a direct borrowing from Greek, while Uzbek uses a descriptive native term. This illustrates a tendency in Uzbek to use descriptive or literal translations for certain medical fields, potentially enhancing understanding among speakers who are less familiar with Greek or Latin roots.

Through these examples, we can see how historical influences, cultural preferences, and linguistic policies shape the medical terminology in Russian and Uzbek. The direct borrowings and adaptations reflect both a respect for international scientific standards and a local adaptation that suits linguistic comfort and public comprehension.

**Figure 2. Etymology of "Dermatology"**



This flowchart diagram illustrates the etymological journey of the term "dermatology" from its Greek origins to its current forms in Russian and Uzbek. Starting from the Greek word

"*δέρμα*" (derma), meaning "skin", the diagram branches into two paths: one leading to the Russian term "*Дерматология*" (Dermatologiya) and the other to the Uzbek term "*Dermatologiya*". This visual effectively demonstrates the direct linguistic lineage and minimal adaptation in both languages, reflecting the shared medical lexicon influenced by Greek.

**Table 1. Comparison of common medical terms.**

<i>English Term</i>	<i>Russian Term</i>	<i>Uzbek Term</i>	<i>Notes</i>
<i>Surgery</i>	Хирургия	Jarrohlik	Uzbek term is a native formation, emphasizing local linguistic adaptation.
<i>Infection</i>	Инфекция	Infektsiya	Direct borrowing in both languages.
<i>Bone</i>	Кость	Suyak	Russian uses a Slavic root, Uzbek uses a Turkic root.

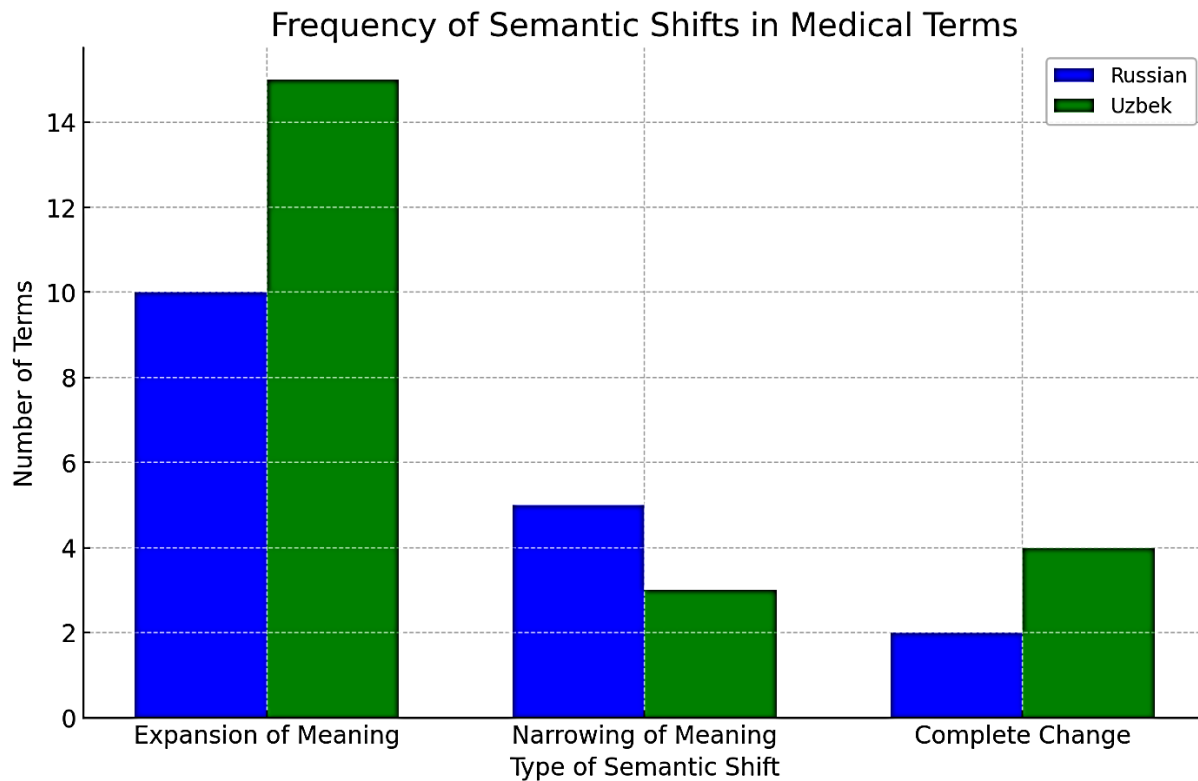
A comprehensive table that compares common medical terms in English, Russian, and Uzbek, focusing on their morphological adaptations. Each row lists a medical term, its Russian and Uzbek equivalents, and notes on linguistic features or peculiarities. This table serves as a clear reference for understanding the differences in term formation between the two languages and highlights instances of unique adaptation in Uzbek compared to direct borrowing in Russian.

The following is a bar graph displays the frequency of semantic shifts among medical terms in Russian and Uzbek. It categorizes the shifts into three types: expansion of meaning, narrowing of meaning, and complete change. Each category is represented by bars for each language, allowing for an easy comparative analysis of how terms evolve semantically in different linguistic and cultural contexts. The graph categorizes the shifts into three types: expansion of meaning, narrowing of meaning, and complete change. You can see how Uzbek terms tend to show more expansion in meaning, whereas the differences in other categories are relatively less pronounced. This visual aids in understanding the dynamic semantic landscape of medical terminology in the two languages.

The results of the analysis on the linguistic features of medical terms in Uzbek and Russian languages provide insightful observations across several dimensions: etymology, morphology, and semantic shifts. These findings elucidate how medical terminology has evolved and adapted within these two linguistic contexts, influenced by a range of historical, cultural, and political factors. The comparative analysis underscored the influence of historical ties—especially the Soviet legacy—on the medical lexicon in Uzbekistan. Despite recent efforts to indigenize medical terminology in Uzbek, the Russian influence remains pronounced, reflecting longstanding cultural and academic exchanges. This historical layer adds complexity to the medical terminology but also facilitates a certain level of interoperability in medical education and practice across post-Soviet states.

Overall, the results highlight the dynamic nature of medical terminology as it evolves within specific linguistic and cultural milieus. Understanding these features is crucial for enhancing medical translation, education, and communication in multilingual environments where Russian and Uzbek are used. This knowledge not only supports clinical accuracy but also contributes to more effective healthcare delivery by bridging language barriers.

Figure 3. Frequency of semantic shifts in medical terms.



**Conclusion/Recommendations.** The comparative linguistic analysis of medical terms in Uzbek and Russian languages underscores the nuanced interplay of historical, cultural, and linguistic factors that shape medical terminology. This study has highlighted the critical role of etymology, morphology, and semantic shifts in understanding how medical terms evolve in different linguistic environments. The results demonstrate the ongoing influence of Russian on the Uzbek medical lexicon, a legacy of the Soviet era, alongside a growing trend towards linguistic adaptation and standardization in Uzbekistan's medical terminology.

**Recommendations:**

**Enhanced Linguistic Training:** Medical educators in Uzbekistan and Russia should incorporate comprehensive linguistic training in their curricula. This training should focus on the etymology and morphology of medical terms to enhance understanding and facilitate more effective communication among healthcare professionals who operate in multilingual settings.

**Development of Updated Medical Lexicons:** It is essential to continuously update and expand medical dictionaries and lexicons to include new terms and adaptations. These resources should also address common semantic shifts and potential ambiguities to ensure clarity and consistency in medical communication.

**Cross-Language Collaboration:** There should be increased collaboration between linguistic experts in both countries to standardize medical terminology where feasible. Such cooperation could help synchronize medical vocabularies across languages, benefiting international research collaborations, clinical practices, and educational exchanges.

**Research and Documentation:** Ongoing research into the linguistic features of medical terminology in both languages is necessary. This research should document changes and trends in the medical lexicon, especially in response to advancements in medical science and technology. Regular publication of these findings can aid medical translators, educators, and practitioners.

Technology Integration: Leverage technology to develop tools and platforms that can assist in the translation and comprehension of medical terms. Such tools could include AI-driven translation apps and online glossaries that provide contextual usage examples and pronunciation guides, tailored for medical professionals and students.

By implementing these recommendations, stakeholders in the medical and linguistic fields can enhance the accuracy and effectiveness of medical communication. This will not only improve patient care but also foster a deeper understanding and respect for the linguistic diversity inherent in the medical practice across different regions.

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