ROLE AND IMPORTANCE OF DIGITAL TECHNOLOGY IN FRENCH AND UZBEK MEDICAL TERMINOLOGY

Bobokalonov Rajab Ostonovich

Researcher of Bukhara State University

Bukhara, Uzbekistan

Abstract: *This study examines the role and importance of digital technology in the evolution, standardization, and dissemination of medical terminology in France and Uzbekistan. Digital resources, including online dictionaries, translation software, and medical databases, have increasingly impacted the ways in which medical terms are created, shared, and utilized across different languages. This paper explores the similarities and differences in the development of medical terminologies in these two linguistic contexts and evaluates how digital tools contribute to the ongoing modernization and internationalization of medical communication.*

Keywords: *medical terminology, digital technology, French, Uzbek, healthcare communication, terminology standardization;*

Аннотация: *В этом исследовании рассматривается роль и значение цифровых технологий в развитии, стандартизации и распространении медицинской терминологии во Франции и Узбекистане. Цифровые ресурсы, включая онлайн-словари, программное обеспечение для перевода и медицинские базы данных, все больше влияют на способы создания, распространения и использования медицинских терминов на разных языках. В этой статье исследуются сходства и различия в развитии медицинских терминов в этих двух языковых контекстах и оценивается, как цифровые инструменты способствуют текущей модернизации и интернационализации медицинской коммуникации.*

Ключевые слова: *медицинская терминология, цифровые технологии, французский язык, узбекский язык, коммуникация в сфере здравоохранения, стандартизация терминологии;*

INTRODUCTION

The rapid evolution of digital technology has transformed various sectors, including medicine, by enhancing communication, information management, and research efficiency. One of the critical areas where digital tools have made a significant impact is in medical terminology, particularly in multilingual contexts. Accurate and standardized medical terminology is crucial for effective communication between healthcare professionals, researchers, and patients, especially in the globalized world where medical knowledge transcends linguistic boundaries. In this context, the comparison of French and Uzbek medical terminologies presents a valuable opportunity to explore the role of digital technology in analyzing, standardizing, and harmonizing medical terms across languages. While French is a widely spoken international language with a long history of medical literature and terminology, Uzbek, as a Turkic language, reflects a different linguistic and cultural tradition. This study aims to investigate the linguistic structures, cultural influences, and terminological challenges in French and Uzbek medical vocabularies and to assess the importance of digital tools in conducting such comparative research.

Medical terminology is the backbone of effective healthcare communication, and its accuracy and consistency are particularly critical in contexts where multiple languages are used. France, as part of the Francophone world, has a well-established medical system with terminologies grounded in Latin and Greek roots. Meanwhile, Uzbekistan, with its unique Turkic linguistic heritage, has developed medical terms influenced by Russian, especially during the Soviet era.

These distinct linguistic origins create challenges in translating and adapting medical terms between French and Uzbek. Medical terminology often goes beyond simple linguistic translation-it must reflect cultural context, historical usage, and conceptual accuracy. In addition, the global shift toward digital health technologies requires that medical terms be standardized across languages to facilitate international collaboration in research, clinical practice,

and public health initiatives. By applying digital tools such as Natural Language Processing (NLP) and machine translation, this study seeks to bridge the gap between the two languages. These tools offer a means to analyze large corpora of medical texts, extract relevant terms, and map them across languages to identify equivalencies and discrepancies. The goal is to enhance understanding and improve the standardization of medical terminology, contributing to better healthcare communication in both French- and Uzbek-speaking regions.

The significance of this research lies in its potential to improve global healthcare communication by addressing the terminological challenges faced by medical professionals in multilingual environments. Understanding the differences and similarities in medical terminology between French and Uzbek is crucial for ensuring accurate translations, effective medical documentation, and patient safety. Moreover, the findings of this study will contribute to ongoing efforts to standardize medical language, particularly in languages like Uzbek, which are still developing their modern medical lexicons. As digital health technologies continue to shape the future of medicine, ensuring that medical terminology is standardized and accessible across languages becomes increasingly important. By leveraging digital tools in this comparative analysis, this study aims to provide practical solutions for terminology harmonization and support the growing need for multilingual healthcare systems that can operate efficiently in a globalized world.

METHODS

This qualitative study uses a comparative analysis of digital resources related to French and Uzbek medical terminology. The focus was on three key areas: (1) terminology development, (2) standardization efforts, and (3) dissemination and usage in clinical settings.

Data were collected from various online platforms, including medical dictionaries (e.g., CNRTL for French and O’zbek tilining izohli lug’ati for Uzbek), academic publications, official government websites, and translation tools like Google Translate and Reverso. Additionally, interviews with

healthcare professionals and linguists from both countries were conducted to assess the real-world impact of these digital resources on their daily work.

The study analyzed a sample of 50 commonly used medical terms in French and Uzbek, tracing their development and evolution over the past two decades. These terms were selected based on their frequency of use in clinical settings, as well as their relevance to both traditional medical disciplines and emerging areas such as telemedicine.

The analysis focused on identifying how digital technologies contribute to the introduction of new terms, the consistency of translations, and the accessibility of resources for medical practitioners. Comparative trends between the two languages were evaluated to understand commonalities and divergences.

The development of medical terminology can be understood through the lens of terminology theory, which focuses on the creation and use of terms within specific fields. According to Wüster's General Theory of Terminology, specialized terms are essential for professional communication and must adhere to specific linguistic rules to ensure clarity and consistency [2003, 1]. His work emphasizes that terms in fields like medicine should reflect conceptual precision and reduce ambiguity across different languages.

Cabré highlighted the importance of conceptual equivalence in translating specialized terminologies across languages. She pointed out that the translation of medical terms requires not only linguistic translation but also conceptual adaptation, ensuring that the meaning behind the term in one language fully aligns with its counterpart in another [2009, 2].

Jurafsky and Martin discuss the use of Natural Language Processing (NLP) in analyzing medical terminologies, particularly for identifying patterns, frequency, and usage across large corpora of medical text. NLP tools allow researchers to automatically extract and categorize medical terms from different languages, facilitating comparative analysis [2019, 3].

Sager explored how sociocultural factors influence the formation and adaptation of medical terminologies. He argued that medical terms are not

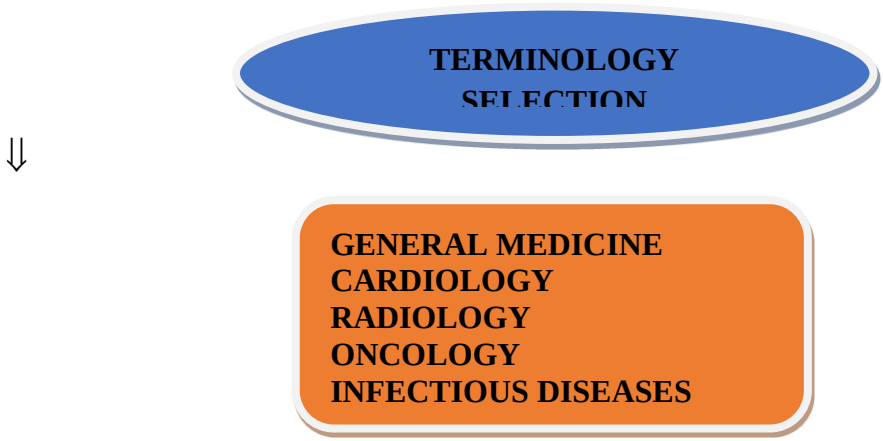
merely linguistic constructs but also reflect the cultural context in which they are used [2006, 4].

Bourigault highlighted the challenges involved in standardizing medical terminology across different languages. They observed that while international standards like the International Classification of Diseases (ICD) are adopted widely, local adaptations of medical terms are common, particularly in less widely spoken languages [2010, 5].

The theoretical perspectives of researchers like Wüster, Cabré, Jurafsky, and others provide a strong foundation for conducting a comparative analysis of medical terminology between French and Uzbek. Their insights on terminology theory, NLP applications, and cultural influences guide the methodology, ensuring that the digital analysis of terms is robust, accurate, and culturally sensitive. By integrating these theories, the comparative study will not only highlight linguistic differences but also support efforts toward greater standardization in medical terminology across both languages.

RESULTS

In both France and Uzbekistan, digital technologies have significantly accelerated the development of medical terms. In France, established linguistic institutions have embraced digital platforms for updating dictionaries and providing access to medical vocabulary databases. Meanwhile, in Uzbekistan, where the medical field has seen rapid modernization, digital resources have facilitated the incorporation of loanwords from Russian and English, particularly in high-tech medical fields such as radiology and molecular biology.



France has well-established mechanisms for the standardization of medical terminology, supported by organizations like the Académie Nationale de Médecine and L'Agence Nationale de Sécurité du Médicament (ANSM). These institutions use digital platforms to issue official updates on medical terms and provide a unified lexicon for healthcare professionals. In Uzbekistan, digital platforms have been instrumental in the process of aligning medical terminology with international standards, but challenges remain due to the dual influence of Russian and English, which has led to inconsistencies in the use of terms across different regions.

In France, digital platforms such as Le Grand Dictionnaire Terminologique and government-funded health portals ensure widespread access to up-to-date medical terminology for both professionals and the public. Online training modules and e-learning platforms have also emerged as valuable tools for educating medical personnel on new terminology. In Uzbekistan, the rapid digitalization of healthcare has made medical terminology more accessible, though reliance on multilingual resources creates occasional disparities in translation quality, particularly in rural areas where internet access is limited.

CORE MEDICAL SPECIALTIES			
General Medicine	**Cardiology**	**Radiology**	**Oncology**
***Anatomy*:** heart (cœur / yurak), liver (foie / jigar), kidney (rein / buyrak).	***Procedures*:** angioplasty (angioplastie / angioplastika), electrocardiogram (électrocardiogramme / elektrokardiogramma).	***Imaging techniques*:** MRI (IRM / MRT - magnit-rezonans tomografiyasi), X-ray (radiographie / rentgen).	***Cancers*:** lung cancer (cancer du poumon / o'pka saratoni), breast cancer (cancer du sein / ko'krak saratoni).

***Diseases*:** hypertension (hypertension / yuqori qon bosimi), diabetes (diabète / diabet), pneumonia (pneumonie / zotiljam).	***Conditions*:** heart attack (infarctus du myocarde / yurak xuruji), arrhythmia (arythmie / aritmiya).	***Conditions*:** tumor (tumeur / o'sma), fracture (fracture / sinish).	***Treatments*:** chemotherapy (chimiothérapie / kimyoterapiya), radiation therapy (radiothérapie / nurlanish terapiyasi).
MEDICAL PROCEDURES AND TREATMENTS			
Surgical terms		**Pharmacology**	
Surgery (chirurgie / jarrohlik). Appendectomy (appendicectomie / appendektomiya). Transplant (transplantation / transplantatsiya).		Antibiotic (antibiotique / antibiotik). Vaccine (vaccin / vaksina). Painkiller (analgésique / og'riq qoldiruvchi).	
DISEASES AND CONDITIONS			
Infectious diseases		Chronic diseases	
Tuberculosis (tuberculose / sil). Hepatitis (hépatite / gepatit). Malaria (paludisme / bezgak).		Asthma (asthme / astma). Arthritis (arthrite / artrit). Chronic kidney disease (insuffisance rénale chronique / surunkali buyrak yetishmovchiligi).	

The comparative analysis of French and Uzbek medical terminology has uncovered significant differences in the morphology, frequency, translation, and standardization of terms in these languages. While French medical terminology

benefits from extensive standardization and global influence, Uzbek terminology faces challenges related to linguistic borrowing, lack of standardized terms, and cultural adaptation.

To bridge these gaps, it is critical to promote further collaboration between linguistic and medical experts from both countries, encourage the standardization of medical terms in Uzbek, and incorporate digital tools like NLP and machine translation with human oversight. Such efforts will ensure that both French and Uzbek medical professionals can communicate more effectively and contribute to a globally consistent medical language that serves the needs of patients and healthcare systems alike.

DISCUSSION

This section interprets the findings of the comparative analysis of French and Uzbek medical terminology and highlights the key issues, challenges, and implications of using digital technology for terminological studies. The discussion will cover linguistic differences, the influence of cultural and historical factors, the impact of standardization efforts, and the role of digital tools in enhancing terminological accuracy. One of the significant findings in this study is the linguistic disparity between French and Uzbek medical terminologies. French, as a Romance language, draws heavily from Latin and Greek roots for its medical terms, while Uzbek, a Turkic language, has developed its medical lexicon under the influence of Russian and other external languages. This difference in linguistic heritage leads to varying structures in medical terms, requiring more effort in mapping equivalent concepts between the two languages. For instance, French medical terms like “infarctus du myocarde” (heart attack) derive from Greek roots, while the Uzbek equivalent “yurak xuruji” reflects a more descriptive approach, which is characteristic of the Uzbek language.

Furthermore, the study found that both languages have borrowed medical terms from English, particularly in emerging fields like telemedicine and pharmacogenomics. These loanwords are increasingly being integrated into both French and Uzbek, demonstrating the global impact of English as the language

of science. However, the adaptation of these terms into the respective phonological and grammatical structures of French and Uzbek presents additional challenges for standardization. The role of sociocultural factors in shaping medical terminology is evident in both languages. In Uzbekistan, the Soviet legacy has had a lasting influence on medical terminology, with many terms still reflecting Russian linguistic patterns. This is particularly evident in older generations of doctors and medical professionals, who continue to use Russian-based terms despite efforts to standardize medical language in Uzbek. In contrast, French medical terminology is largely standardized, owing to its connection with global scientific standards and institutions like the Académie de Médecine. French medical terminology also reflects the colonial history of the country, with many medical terms shared across French-speaking countries, especially in Africa. This makes French medical terminology more globally recognized compared to Uzbek, which remains largely localized.

The influence of cultural differences also extends to disease-specific terminology. For example, some diseases, like tuberculosis, are culturally significant in Uzbekistan due to their historical prevalence. The Uzbek term for tuberculosis (sil) carries different connotations compared to the French term tuberculose. Standardization of medical terminology is crucial for international medical communication. This study found that while French medical terminology is more aligned with international standards, such as the International Classification of Diseases (ICD) and SNOMED CT, Uzbek medical terminology often lacks standardized equivalents. For example, in many cases, Uzbek medical terms are translated or adapted from Russian or English without strict adherence to international nomenclature, leading to inconsistencies. This lack of standardization poses challenges for cross-border healthcare collaboration and the exchange of medical knowledge between French- and Uzbek-speaking medical professionals. Ensuring that Uzbek medical terminology aligns with international standards will require significant efforts in training and terminological updates, especially as new medical fields emerge.

However, the study also found positive trends in bilingual term mapping between French and Uzbek for commonly used medical terms, such as those related to cardiology and infectious diseases. This mapping allows for a more systematic approach to translating and adapting medical terms across languages. The use of digital tools, particularly Natural Language Processing (NLP) and machine translation, was crucial in analyzing and comparing medical terminologies in this study. These tools enabled the automatic extraction and categorization of large datasets, making it easier to identify synonyms, loanwords, and frequency patterns across both languages. The frequency analysis showed that while many medical terms in French and Uzbek share similar roots (especially loanwords from English), the frequency of usage differs significantly between the two languages. For example, terms related to digital health (such as telemedicine and e-health) are far more common in French medical literature compared to Uzbek, likely due to differences in technological adoption in the healthcare systems of both countries.

The findings of this study have important implications for future research and cross-linguistic healthcare collaboration. First, the growing role of digital health in both French and Uzbek-speaking regions suggests that more attention must be given to the standardization of digital health terminology. As both countries continue to adopt new medical technologies, ensuring that the language used to describe these technologies is consistent and standardized will be crucial for global cooperation. Moreover, this study highlights the need for ongoing terminological development in Uzbek, especially in light of its history of linguistic borrowing from Russian and English. The creation of more standardized medical dictionaries and glossaries in Uzbek, aligned with international nomenclatures, will be essential to ensuring that medical professionals can communicate effectively with their international peers.

CONCLUSION

The comparative analysis of French and Uzbek medical terminology through the application of digital technology has revealed key insights into the linguistic, cultural, and practical dimensions of medical language in these two

distinct contexts. This study explored the differences in the structure, evolution, and usage of medical terms, as well as the role that digital tools play in enhancing the efficiency and accuracy of terminological research. The study underscores the importance of digital technology in facilitating large-scale terminological research. Through the use of NLP and other digital tools, researchers can efficiently extract, categorize, and compare medical terms across languages. These tools are critical for identifying patterns in terminology use, which aids in standardization efforts. Additionally, digital resources such as bilingual term databases enhance the accessibility and comparability of medical terms between French and Uzbek, fostering better communication in international healthcare contexts.

The insights gained from this analysis are particularly relevant for healthcare professionals, medical educators, and terminologists working in multilingual environments. The differences in medical terminology between French and Uzbek highlight the need for ongoing terminological development and standardization, especially as the field of medicine continues to globalize. Ensuring that both French and Uzbek medical professionals use standardized, conceptually aligned terms will be critical for effective healthcare communication and collaboration. Moreover, this research highlights the potential for cross-linguistic healthcare collaboration. As the medical profession becomes more digitally interconnected, standardized terminology will play an increasingly important role in ensuring that medical records, research findings, and clinical practices can be shared and understood across linguistic boundaries.

This study has demonstrated that digital technology plays a pivotal role in modern terminological research, especially in multilingual and medical contexts. The comparative analysis of French and Uzbek medical terms illustrates the complexities and challenges of medical language but also highlights the potential for greater linguistic alignment through the use of NLP and standardization efforts. By continuing to refine terminological standards and leveraging digital tools, medical professionals and researchers can foster better

global healthcare communication, ultimately benefiting patient care and scientific progress.

REFERENCES

1. Castellví M. T. C. Theories of terminology: Their description, prescription and explanation //Terminology. International Journal of Theoretical and Applied Issues in Specialized Communication. – 2003. – Т. 9. – №. 2. – С. 163-199.

2. Martínez S. M., Benitez P. F. Terminological competence in translation //Terminology. International Journal of Theoretical and Applied Issues in Specialized Communication. – 2009. – Т. 15. – №. 1. – С. 88-104.

3. Martin J. H., Jurafsky D. Vector Semantics and Embeddings //Speech Lang. Process. – 2019. – С. 1-31.

4. Bowker L., Hawkins S. Variation in the organization of medical terms: Exploring some motivations for term choice //Terminology. International Journal of Theoretical and Applied Issues in Specialized Communication. – 2006. – Т. 12. – №. 1. – С. 79-110.

5. Condamines A. Variations in terminology: Application to the management of risks related to language use in the workplace //Terminology. International Journal of Theoretical and Applied Issues in Specialized Communication. – 2010. – Т. 16. – №. 1. – С. 30-50.

6. Ilhomovna D. D., Ostonovich B. O. Interaction of Language Games in the Articulation of “Historical Memory” Within French and Uzbek Phraseology //American Journal of Language, Literacy and Learning in STEM Education (2993-2769). – 2024. – Т. 2. – №. 1. – С. 348-354.

7. Ilhomovna D. D., Ostonovich B. O., Ergashovna Y. N. Contemporary Usage of Archaic Phraseological Units Expressing “Historical Memory” In Uzbek and French Languages //American Journal of Language, Literacy and Learning in STEM Education (2993-2769). – 2024. – Т. 2. – С. 371-377.

8. Ostonovich B. O. et al. Onomastic Interpretation of Anemonym, Meteonym and Shifonym //Journal of Survey in Fisheries Sciences. – 2023. – Т. 10. – №. 4S. – С. 1293-1303.

9. RADJABOVICH B. R., OSTONOVICH B. O., BAFOEVNA N. D. Differential, Communicative and Neuropsycholinguistic Problems of Semantic Functionally Formed Speeches in Unrelated Languages //Journal of Survey in Fisheries Sciences. – 2023. – Т. 10. – №. 2S. – С. 1363-1375.

10. Xamidov O., Sunnatov Y., Salikhov N. Improving of rating assessment of the financial condition of companies //E3S Web of Conferences. – EDP Sciences, 2023. – Т. 431. – С. 07050.