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COMPARISON OF DENTAL TERMINOLOGY ACROSS DIFFERENT LANGUAGES

Annotation

The study explores the variations and similarities in dental terminology across several major languages including English, Spanish, Russian, and Mandarin. The objective is to understand linguistic influences on dental vocabulary, highlight challenges in cross-linguistic communication in dentistry, and emphasize the need for standardized terminology. Using comparative linguistic analysis and literature review, this paper reveals significant differences in terminology structure and usage, which may impact global dental education and clinical practice.

Key words: Dental terminology, linguistic nuances, multilingual awareness, terminology, dental professionals, clinical communication.

СТОМАТОЛОГИК АТАМАЛАРНИНГ ТУРЛИ ТИЛЛАРДА ТАҚҚОСЛАНИШИ

Аннотация

Ushbu tadqiqot ingliz, ispan, rus va xitoy (mandarin) tillaridagi stomatologik atamalarni o‘zaro solishtirib, ularning o‘xshashliklari va farqlarini o‘rganadi. Tadqiqotning asosiy maqsadi – stomatologik lug‘atga tilshunoslik ta‘sirini anglash, stomatologiyada tillararo muloqotda yuzaga keladigan muammolarni yoritish hamda yagona standartlashtirilgan atamalar tizimining zarurligini ta‘kidlashdir. Taqqoslovchi tilshunoslik tahlili va ilmiy adabiyotlar sharhi asosida ushbu maqolada atamalar tuzilmasi va qo‘llanishidagi muhim farqlar ochib beriladi, bu esa global stomatologik ta‘lim va amaliyotga ta‘sir ko‘rsatishi mumkin.

Kalit so‘zlar: Stomatologik atamalar, tilshunoslik nozikliklari, ko‘p tillilik xabardorligi, amashunoslik, stomatolog mutaxassislar, klinik muloqot.

СРАВНЕНИЕ СТОМАТОЛОГИЧЕСКОЙ ТЕРМИНОЛОГИИ НА РАЗНЫХ ЯЗЫКАХ

Аннотация

В данном исследовании рассматриваются различия и сходства в стоматологической терминологии на нескольких основных языках, включая английский, испанский, русский и китайский (мандарин). Цель работы — выявить лингвистические влияния на стоматологическую лексику, обозначить проблемы межъязыковой коммуникации в стоматологии и подчеркнуть необходимость стандартизации терминологии. Посредством сравнительно-лингвистического анализа и обзора литературы статья раскрывает существенные различия в структуре и использовании терминов, что может повлиять на мировую стоматологическую подготовку и клиническую практику.

Ключевые слова: Стоматологическая терминология, языковые нюансы, многоязычная осведомлённость, терминология, стоматологические специалисты, клиническая коммуникация.

Introduction. Dental terminology forms the backbone of communication within dentistry. Accurate and consistent use of dental terms is essential for effective clinical practice, education, and research. However, linguistic and cultural differences often lead to variations in terminology, complicating communication in multinational contexts [1]. This study aims to conduct a comparative analysis of dental terminology across four major world languages—English, Spanish, Russian, and Mandarin Chinese. These languages were selected not only due to their wide global usage but also because they represent distinct language families: Germanic (English), Romance (Spanish), Slavic (Russian), and Sino-Tibetan (Mandarin). By examining the structure, origin, and usage of dental terms in these languages, the study seeks to explore how linguistic and cultural differences influence

the conceptualization and categorization of dental concepts.

Ultimately, the findings of this comparative linguistic study are intended to contribute to the broader field of medical translation, enhance cross-cultural competence in dentistry, and support the development of more effective multilingual resources and training materials for dental practitioners worldwide.

Dental terminology is essential for effective communication among dental professionals and between practitioners and patients. As globalization increases, the need for a comprehensive understanding of dental terms in various languages becomes paramount.

Methods. This research employed a qualitative comparative analysis method. Dental terminology glossaries and textbooks in English, Spanish, Russian [4], and Mandarin [5] were examined [2]. Terms related to

dental anatomy, procedures, and diseases were extracted and categorized. Cross-linguistic comparison was conducted to identify lexical similarities, morphological differences, and conceptual equivalences. Additionally, expert interviews with multilingual dental professionals were conducted to gain insights into practical challenges of terminology use.

The analysis revealed significant variation in term formation, with English and Spanish favoring Latin-based roots, while Russian and Mandarin often utilize native or adapted lexical structures[3]. Morphological complexity was particularly notable in Russian, where compound words and affixation are prevalent. Conceptual gaps were identified in several instances, where a term in one language had no direct equivalent in another, necessitating descriptive translations[7]. Insights from expert interviews highlighted the importance of contextual knowledge and cultural awareness in accurately interpreting and applying dental terminology across languages.

This research employs a comparative linguistic analysis, focusing on key dental terms related to anatomy, procedures, and tools. A selection of terms was identified in each language, followed by a thorough examination of their meanings and usage within the context of dentistry.

Results. The analysis revealed significant linguistic variation in the formation and usage of dental terminology across the four languages studied. English and Spanish, both of which derive substantial portions of their medical lexicon from Latin, exhibit a high degree of lexical similarity in dental terms. This shared etymological foundation facilitates partial mutual intelligibility between

the two languages, particularly in technical vocabulary. For instance, terms such as caries in English and caries dentales in Spanish illustrate this parallelism, highlighting their common Latin origin [3].

In contrast, Russian dental terminology reflects a more complex structure, combining indigenous Slavic roots with Latin-based medical vocabulary. This results in a hybrid system wherein foundational dental concepts may be expressed through native terms, while specialized or internationally standardized terms tend to retain their Latin forms [4]. Such duality can complicate terminology acquisition for both native speakers and foreign learners of Russian.

Mandarin Chinese, on the other hand, employs a distinct morphological approach characterized by the use of logographic characters that convey both semantic and phonetic information. This results in terminology that is culturally and linguistically unique, often requiring substantial explanation when translated or interpreted across linguistic boundaries [5]. Moreover, the study identified instances where certain dental concepts, particularly those related to recent technological advancements, lack direct equivalents in one or more of the target languages. In such cases, translators and practitioners must rely on descriptive phrases or neologisms to convey meaning effectively [1]. These discrepancies underscore the challenges faced in the development of multilingual dental education resources and highlight the potential for miscommunication in clinical practice involving linguistically diverse patients and professionals.

Table: Linguistic Features of Dental Terminology Across Four Languages

Language	Key Characteristics
English & Spanish	High lexical similarity due to Latin roots; facilitates partial mutual intelligibility. Example: caries / caries dentales.
Russian	Hybrid vocabulary: native Slavic roots used alongside Latin-derived terms for medical/dental contexts.
Mandarin Chinese	Terms formed from native morphemes using logographic characters; minimal foreign loanwords; culturally unique structure.
All Languages	Some modern terms (esp. new technologies) lack direct equivalents; descriptive translations or neologisms often required.

Key Dental Terms Across Languages

- Anatomical Terms
 - Tooth:
 - English: Tooth
 - Spanish: Diente
 - Russian: Зуб (Zub)
 - Chinese: 牙 (Yá)
 - Common Procedures
 - Extraction:
 - English: Extraction
 - Spanish: Extracción
 - Russian: Удаление (Udalenie)
 - Chinese: 拔牙 (Báyá)

- Dental Tools
 - Drill:
 - English: Drill
 - Spanish: Taladro
 - Russian: Бур (Bur)
 - Chinese: 钻头 (Zuántóu)

Discussion. The findings underscore the importance of understanding linguistic nuances in dental terminology for globalized dental practice. While shared Latin roots aid communication between English and Spanish speakers, Russian and Mandarin present more distinct systems. This necessitates development of multilingual dental glossaries and standardization efforts to

reduce misunderstandings[6]. Training dental professionals in cross-linguistic terminology competence is recommended to improve international collaboration and patient care. Future research could expand to other languages and focus on digital dentistry terminology.

The analysis reveals that while many dental terms have direct translations, cultural context and usage may differ significantly. For instance, the term "extraction" is commonly understood in all languages; however, the nuances in patient communication can vary. In some cultures, the term may evoke anxiety, while in others, it is viewed as a routine procedure.

Conclusion. Variations in dental terminology across languages reflect deeper linguistic and cultural differences that impact clinical communication and education. Standardizing dental vocabulary and promoting multilingual awareness are crucial steps toward better global dental health outcomes.

These linguistic variations not only influence terminology comprehension but also affect the accuracy and clarity of clinical documentation and patient

instructions. Misinterpretations arising from non-equivalent terms can lead to diagnostic errors, procedural misunderstandings, or decreased patient trust. In educational settings, inconsistent terminology across languages may hinder the training of international dental students and complicate curriculum development. Therefore, there is a growing need for harmonized dental lexicons and enhanced cross-linguistic training within professional development programs. Collaborative efforts between linguists, dental educators, and health organizations are essential to bridge these gaps and ensure effective, inclusive communication in global dental practice.

Understanding dental terminology in different languages is crucial for improving patient care and enhancing communication among dental professionals. This comparative analysis highlights the importance of cultural competence in dentistry, emphasizing the need for practitioners to be aware of linguistic variations and their implications in practice.

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