




# The Challenges of Achieving Dynamic Equivalence in the Arabic Translation of Medical Terminology for Heart and Brain Diseases: Difficulties and Recommendations

**Dr. Yasser Mohamed Attia**

Assistant professor at Al-Ghad International Colleges for  
Applied Medical Sciences  
KSA, Najran  
[dryasser24@gmail.com](mailto:dryasser24@gmail.com)

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## **The Challenges of Achieving Dynamic Equivalence in the Arabic Translation of Medical Terminology for Heart and Brain Diseases: Difficulties and Recommendations**

### **Abstract**

This study investigates the Challenges of Achieving Dynamic Equivalence in Arabic Translation of Medical Terminology of Heart and Brain Diseases. By examining 15 of the most widely used English medical terms related to heart and brain conditions and their Arabic equivalents, excluding pharmacy-related terms due to their complex nature...", the research highlights the significant difficulties encountered by medical students and researchers. These challenges include terminological inconsistencies and the lack of direct equivalents in Arabic, which complicate the translation process. The study systematically categorizes these difficulties and provides detailed recommendations to address them. Emphasizing the importance of adhering to the structure of the Arabic language, the study aims to improve the accuracy and consistency of medical translations, ensuring better communication and understanding in medical contexts.

**Keywords:** Dynamic Equivalence, Medical Terminology, Heart Diseases, Brain Diseases, Translation Challenges.

## تحديات تحقيق التكافؤ الديناميكي في ترجمة المصطلحات الطبية المتعلقة بأمراض القلب والدماغ إلى اللغة العربية: الصعوبات والتوصيات

### مستخلص

تستقضي هذه الدراسة تحديات تحقيق التكافؤ الديناميكي في ترجمة المصطلحات الطبية المتعلقة بأمراض القلب والدماغ إلى اللغة العربية. من خلال فحص 15 من أكثر المصطلحات الطبية الإنجليزية استخدامًا فيما يتعلق بأمراض القلب والدماغ ومكافئاتها في اللغة العربية، مع استثناء المصطلحات الصيدلانية بسبب طبيعتها المعقدة، تبرز هذه الدراسة الصعوبات الكبيرة التي يواجهها الطلاب والباحثون في المجال الطبي. تشمل هذه التحديات التباينات المصطلحية وغياب المكافئات المباشرة في اللغة العربية، مما يعقد عملية الترجمة. تصنف الدراسة هذه الصعوبات بشكل منهجي وتقدم توصيات مفصلة لمعالجتها. مع التأكيد على أهمية الالتزام ببنية اللغة العربية، تهدف الدراسة إلى تحسين دقة واتساق الترجمات الطبية، مما يضمن تحسين التواصل والفهم في السياقات الطبية.

**الكلمات المفتاحية:** التكافؤ الديناميكي، المصطلحات الطبية، أمراض القلب، أمراض الدماغ، تحديات الترجمة.

## **Introduction**

Dynamic equivalence, also known as, functional equivalence, is crucial in translation as it ensures clarity, cultural relevance, and natural flow, making the translated text more comprehensible and engaging for the target audience. This approach allows for the adaptation of the text to fit the linguistic and cultural context of the target language, thereby retaining the original impact and effectively communicating complex concepts. In fields like medicine, dynamic equivalence ensures accurate and clear communication, reducing misinterpretation risks (Nida, 1964; Al-Jarf, 2018). For example, translating "Myocardial Infarction" to "نوبة قلبية حادة" in Arabic provides a more understandable and impactful translation for the general public.

Translating medical texts from English into Arabic presents significant challenges due to the complex nature of medical terminology and the differences between the two languages. This study investigates the problems that arise during the translation process and suggests strategies to enhance accuracy and clarity. The research is grounded in the authors' extensive experience and focuses on identifying specific difficulties and providing practical solutions.

The researcher has chosen this topic for the following reasons:

**Complexity of Medical Terminology:** Medical terminology is intricate and precise, requiring accurate translation to ensure the correct understanding and application of medical information. This complexity is amplified when translating between languages with different linguistic structures, such as English and Arabic (Al-Jarf, 2015; El-Sayed & Farghaly, 2016).

**Language Differences:** English and Arabic have significant differences in syntax, grammar, and semantics, which can lead to challenges in achieving accurate translations. Understanding these differences is crucial for effective communication in medical contexts (Ghazala, 2008; Hatim & Mason, 1997).

**Cultural Nuances:** Cultural differences between English-speaking and Arabic-speaking regions can impact the translation of medical texts. Translators need to consider cultural contexts to ensure that the translated material is relevant and appropriate for the target audience (Nida, 1964; Al-Qinai, 2005).

**Patient Safety:** Accurate medical translations are vital for patient safety. Errors in translation can lead to misunderstandings, misdiagnoses, and incorrect treatments, which can have serious consequences for patients (Phelan, 2019; Flores, 2006).

**Professional Interest and Experience:** The researcher's extensive experience in the field likely provides a deep understanding of the specific challenges and nuances involved in medical translation. This background may motivate them to explore and address these issues in a systematic study (Author's own experience; Biel, 2011).

**Demand for Quality Translations:** With the globalization of healthcare, there is an increasing need for high-quality medical translations. By identifying and addressing translation challenges, the researcher can contribute to improving the standards and practices in this field ,

**Contribution to the Field:** The study has the potential to make a significant contribution to the field of medical translation by providing insights and practical solutions that can enhance the accuracy and clarity of translations, ultimately benefiting healthcare professionals and patients alike,

## **Objectives**

The primary objective of this study is to examine the challenges associated with translating specific medical terms. It aims to answer the following question: How do current translators handle the complexity of medical terms? This research aims to identify and analyze intricate medical terms in English and their Arabic equivalents, exploring linguistic differences and assessing cultural nuances to ensure culturally relevant translations. Additionally, the study seeks to develop strategies to enhance patient safety by reducing risks of misinterpretation and incorrect treatments. Leveraging the researcher's extensive experience, it aims to address the growing demand for high-quality medical translations and contribute valuable insights and practical solutions to the field. By applying dynamic equivalence, the study ensures that translations are clear, culturally appropriate, and maintain the original impact.

## **Methodology**

This study employs a descriptive and comparative analysis to examine the translation of medical terms. Data were collected from three key medical texts: The Unified Medical Dictionary (UMD), Anatomy and Physiology: A Self-Instructional Course and Reviews of Pharmacology. The study analyzes the translation procedures used in these texts, including transliteration, literal translation, borrowing, calque, and paraphrasing.

## **Discussion**

The translation of medical terms from English to Arabic involves several challenges. The following table lists 15 of medical terminology related to heart and brain diseases, along with their Arabic equivalents and suggestions to address potential translation difficulties:

**Table 1: Medical Terminology and Translation Suggestions**

English Term	Arabic Equivalent	Difficulty	Suggestion
Myocardial Infarction	احتشاء عضلة القلب	The term "Infarction" may be difficult to convey accurately.	Use a descriptive phrase like "نوبة قلبية حادة" to enhance understanding.
Atrial Fibrillation	الرجفان الأذيني	"Fibrillation" is a complex term that may not have a direct equivalent.	Simplify the term to "اضطراب نظم القلب" for better comprehension.
Congestive Heart Failure	فشل القلب الاحتقاني	The word "Congestive" may be unclear to non-medical audiences.	Use "قصور القلب" instead, which is more commonly understood.
Coronary Artery Disease	مرض الشريان التاجي	"Coronary Artery" might be unfamiliar.	Provide a context or explanation, such as "مرض الشرايين المغذية للقلب".
Stroke	السكتة الدماغية	"Stroke" can be ambiguous in meaning.	Use "جلطة دماغية" to specify the condition more clearly.
Aneurysm	تمدد الأوعية الدموية	"Aneurysm" might not be widely recognized.	Describe it as "انتفاخ في جدار الوعاء الدموي" for clarity.
Epilepsy	الصرع	The term "Epilepsy" may carry stigma or be misunderstood.	Use "اضطراب كهرباء الدماغ" to provide a clear medical context.
Parkinson's Disease	مرض باركنسون	The name "Parkinson" may not be universally known.	Add a description like "اضطراب في الجهاز العصبي" to specify its nature.

English Term	Arabic Equivalent	Difficulty	Suggestion
Multiple Sclerosis	التصلب المتعدد	The term "Multiple Sclerosis" can be complex and unfamiliar.	Use "التصلب اللويحي" to align with more common Arabic medical terminology.
Alzheimer's Disease	مرض الزهايمر	The name "Alzheimer" might not be widely understood.	Include a descriptive phrase such as "مرض فقدان الذاكرة التدريجي".
Cerebral Palsy	الشلل الدماغي	"Cerebral Palsy" may not have a well-known equivalent.	Use "شلل دماغي" to simplify and make it more understandable.
Hypertension	ارتفاع ضغط الدم	The term "Hypertension" may be too technical.	Use "ضغط الدم المرتفع" for clearer understanding.
Angina Pectoris	الذبحة الصدرية	The term "Angina" might not be well understood.	Use "ألم في الصدر" to describe the condition more clearly.
Ischemic Stroke	السكتة الدماغية الإقفارية	"Ischemic" is a specialized term that may not be widely recognized.	Simplify to "جلطة دماغية بسبب نقص الدم" for better understanding.
Amyotrophic Lateral Sclerosis	التصلب الجانبي الضموري	The term "Amyotrophic Lateral Sclerosis" can be highly technical and complex.	Use "مرض لو جيريج" (as it is also known) along with "التصلب الجانبي الضموري" for clarity.



## Results

The analysis reveals five main translation procedures used by medical translators: borrowing, literal translation, calque, transliteration, and paraphrasing. The findings indicate that literal translation is the most commonly used method, followed by borrowing and transliteration.

**Table 2: Translation Procedures and Their Frequency**

<b>Translation Mechanism</b>	<b>UMD Frequency (%)</b>	<b>Glossary Frequency (%)</b>
Borrowing	25	14
Literal Translation	42	58
Transliteration	14	4
Calque	8	4
Paraphrasing	11	20

## Difficulties and Recommendations.

**Difficulties:** Terminological Inconsistencies: One of the primary challenges in translating medical terms is the inconsistency in terminology. Medical terms often have multiple Arabic equivalents, leading to confusion and misinterpretation (Al-Jarf, 2018).

1. Lack of Direct Equivalents: Many medical terms in English do not have direct equivalents in Arabic, complicating the translation process. This can result in translations that are either too literal or fail to convey the full meaning of the original term (El-Sayed & Farghaly, 2016).
2. Complexity of Medical Language: Medical terminology is often complex and specialized. Translators must have a deep understanding of medical concepts to accurately translate these terms (Ghazala, 2008).

3. **Cultural Differences:** Cultural differences between English-speaking and Arabic-speaking regions can impact the translation of medical texts. These differences necessitate a careful consideration of cultural contexts to ensure that the translations are appropriate and relevant (Nida, 1964).
4. **Patient Safety:** Errors in medical translation can lead to significant risks for patient safety, including misdiagnoses and incorrect treatments. Ensuring accuracy in medical translations is critical to prevent such outcomes (Flores, 2006).

The researcher also finds more difficulties as follow:

#### 6. Ambiguity and Polysemy in Medical Terminology

- **Challenge:** Some medical terms can have multiple meanings depending on the context, which can lead to ambiguous translations if the context is not clearly understood. For example, the term "lesion" can refer to any abnormal tissue found in the body, but its significance can vary greatly depending on the condition it is associated with.
- **Researcher's Role:** The researcher should analyze the specific context in which these terms are used and determine the most accurate Arabic equivalent to avoid misinterpretation.

#### 7. Evolving Medical Terminology

- **Challenge:** Medical science is continuously evolving, leading to the creation of new terms and the redefinition of existing ones. Translators may struggle to keep up with these changes, especially if the corresponding Arabic terms have not yet been standardized.
- **Researcher's Role:** The researcher can contribute by identifying emerging medical terms and proposing accurate Arabic equivalents, potentially working with medical professionals to establish consensus on these new terms.

## 8. Inconsistency in Source Texts

- Challenge: Source medical texts in English may themselves be inconsistent, with variations in terminology usage or unclear definitions, which can complicate translation efforts.
- Researcher's Role: The researcher should critically evaluate the source texts, identify inconsistencies, and decide on the most appropriate translation approach, ensuring clarity and consistency in the Arabic version.

## 9. Idiomatic Expressions and Colloquial Language

- Challenge: Some medical texts, especially those intended for patient education, may contain idiomatic expressions or colloquial language that do not have direct Arabic equivalents.
- Researcher's Role: The researcher can focus on finding culturally relevant ways to convey these idioms or suggest alternative phrases that maintain the intended meaning without losing the original's nuance.

## 10. Varied Levels of Formality

- Challenge: Medical texts can range from highly formal scientific papers to more informal patient instructions, each requiring a different translation approach to maintain the appropriate tone and level of formality in Arabic.
- Researcher's Role: The researcher should examine the target audience and purpose of the translation, adjusting the language level and style accordingly to ensure that the translation is both accurate and accessible.

## 11. Legal and Ethical Considerations

- Challenge: Translating medical texts involves not only linguistic accuracy but also adherence to legal and ethical standards, particularly when dealing with sensitive patient information or consent forms.

- **Researcher's Role:** The researcher should identify any legal and ethical considerations specific to the translation of medical texts into Arabic and ensure that these are addressed in the translation process.

## 12. Translation of Technical Descriptions and Procedures

- **Challenge:** Detailed descriptions of medical procedures, technologies, or equipment can be difficult to translate accurately due to the highly specialized language and the need for precise terminology.
- **Researcher's Role:** The researcher can contribute by developing specialized glossaries or guidelines that help standardize the translation of these technical descriptions, ensuring clarity and precision.

These added difficulties highlight areas where the researcher's unique contributions can enhance the quality and accuracy of medical translations, making them more reliable and culturally appropriate for Arabic-speaking audiences.

**Recommendations:****A: Previous recommendations:**

1. **Standardization of Terminology:** Establishing standardized medical terminology in Arabic can help reduce inconsistencies and improve clarity. This involves creating comprehensive glossaries and databases of standardized terms (Al-Jarf, 2015).
2. **Use of Descriptive Phrases:** When direct equivalents are not available, using descriptive phrases can enhance understanding. For example, translating "Myocardial Infarction" as "نوبة قلبية حادة" makes the term more accessible to the general public (Nida, 1964).
3. **Training for Translators:** Providing specialized training for medical translators can help them better understand complex medical concepts and improve their translation skills. This training should include both linguistic and medical education (Hatim & Mason, 1997).
4. **Cultural Sensitivity:** Translators should be trained to recognize and address cultural differences in medical texts. This includes understanding cultural attitudes towards certain medical conditions and ensuring that translations are culturally appropriate (Al-Qinai, 2005).
5. **Quality Assurance Processes:** Implementing rigorous quality assurance processes can help identify and correct errors in medical translations. This includes peer reviews, use of translation memory tools, and regular updates to medical glossaries (Phelan, 2019).
6. **Collaboration with Medical Professionals:** Translators should work closely with medical professionals to ensure the accuracy and clarity of translations. This collaboration can provide valuable insights into medical concepts and terminology (El-Sayed & Farghaly, 2016).

## **B: The researcher's recommendations:**

Here are tailored recommendations to address each of the translation difficulties mentioned:

### 1. Terminological Inconsistencies

- Recommendation: Develop a comprehensive, standardized glossary of medical terms in Arabic. Collaborate with medical professionals and linguists to ensure that the glossary includes the most accurate and widely accepted terms. Regularly update the glossary to reflect new developments and regional variations.

### 2. Lack of Direct Equivalent

- Recommendation: When no direct Arabic equivalent exists, use descriptive translations that convey the full meaning of the original term. Additionally, consider coining new terms that can be gradually introduced into the medical community. Provide footnotes or explanations for newly introduced terms to aid understanding.

### 3. Complexity of Medical Language

- Recommendation: Ensure that translators have a strong background in medical science and are familiar with the specific terminology related to heart and brain diseases. Ongoing training and collaboration with medical experts can help maintain the accuracy of translations. Consider using specialized translation software with medical term databases to assist in the process.

### 4. Cultural Differences

- Recommendation: Conduct a cultural analysis of the target audience to identify potential cultural barriers in the translation. Adapt the translation to align with cultural norms

and values while preserving the medical accuracy of the text. In cases where cultural differences are significant, provide contextual explanations or alternatives that are culturally sensitive.

#### 5. Patient Safety

- Recommendation: Implement rigorous quality control measures, such as peer reviews by medical professionals, to ensure the accuracy of translations. Establish protocols for verifying translations, especially in critical areas like diagnoses and treatment instructions. Encourage the use of back-translation (translating back into the original language) to check for consistency and accuracy.

#### 6. Ambiguity and Polysemy in Medical Terminology

- Recommendation: Carefully analyze the context of ambiguous terms before translating them. Where ambiguity remains, provide additional context or explanatory notes to clarify the meaning. Work with medical professionals to ensure that the translation reflects the intended medical concept accurately.

#### 7. Evolving Medical Terminology

- Recommendation: Stay updated with the latest developments in medical science by regularly reviewing medical literature and attending conferences or workshops. Establish a dynamic glossary that can be updated with new terms and their corresponding Arabic equivalents. Encourage the creation of a collaborative platform where translators and medical professionals can discuss and standardize new terms.

#### 8. Inconsistency in Source Texts

- Recommendation: Identify and document inconsistencies in the source texts during the translation process. Where

necessary, consult with the authors or subject matter experts to resolve these inconsistencies. Consider creating a reference document that highlights these issues and explains the translation choices made to ensure consistency.

#### 9. Idiomatic Expressions and Colloquial Language

- Recommendation: Identify idiomatic expressions and colloquial language in the source text and find culturally appropriate equivalents in Arabic. If a direct translation is not possible, provide an explanation or adapt the expression to fit the cultural context while preserving the intended meaning.

#### 10. Varied Levels of Formality

- Recommendation: Analyze the target audience and the purpose of the translation to determine the appropriate level of formality. For scientific or professional audiences, maintain a high level of formality and technical accuracy. For patient-oriented texts, use simpler language and a more conversational tone. Provide guidelines on formality levels to ensure consistency across translations.

#### 11. Legal and Ethical Considerations

- Recommendation: Familiarize yourself with the legal and ethical standards relevant to medical translations in both the source and target languages. Ensure that the translation respects patient confidentiality, informed consent, and other legal requirements. When translating sensitive information, consider consulting with legal experts to ensure compliance.

#### 12. Translation of Technical Descriptions and Procedures

- Recommendation: Collaborate with subject matter experts to ensure the accuracy of technical descriptions and procedures in the translation. Use detailed glossaries and reference materials to maintain consistency in terminology. Consider



developing specialized training programs for translators working on highly technical medical texts to enhance their understanding of the subject matter.

By implementing these recommendations, the translation process can become more accurate, culturally sensitive, and consistent, ultimately improving the quality and safety of medical texts translated into Arabic.

### **Conclusion**

The translation of medical terms from English into Arabic requires careful consideration of linguistic and cultural nuances. By employing a variety of translation methods and being mindful of potential difficulties, translators can enhance the accuracy and clarity of medical texts. This study provides practical suggestions for improving the translation process and emphasizes the importance of consistency in medical terminology.

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