Sosyal Bilimler Dergisi / The Journal of Social Sciences

Akademik Sosyal Araştırmalar Dergisi, Yıl: 7, Sayı: 46, Haziran 2020, s. 340-351

ISSN: 2149-0821 Doi Number: <http://dx.doi.org/10.29228/SOBIDER.43857>

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TRANSLATION OF MEDICAL TEXTS: CHALLENGES AND SOLUTIONS

Abstract

Accepted as a sub-field of technical translation, medical translation has its own dynamics affecting the process of translating. It seems to be a challenging task for translators because of the Latin and Greek nomenclature; linguistic, lexical, semantic, and stylistic features peculiar to medical texts; and different medical registers. Translating medicine requires previous research on relevant medical fields and terminological data. A functional translation that meets the expectations of the target audience strongly depends on the knowledge, experience and approaches of the translator. The aim of this study is twofold. Firstly, the features of medical texts which may have the potential of creating problems within the process of translation will be addressed. Then, the translation procedures towards overcoming the challenges that are faced by the translator will be discussed.

Keywords: Medical Translation, Medical Terminology, Translation Studies, Medical Registers

TIP METİNLERİ ÇEVİRİSİ: SORUNLAR VE ÇÖZÜMLER

Özet

Teknik çevirinin bir alt alanı olarak kabul edilen tıp çevirisinin, çeviri sürecini etkileyen kendi dinamikleri vardır. Latin ve Yunan kökenli söz varlığı; tıp metinlerine özgü dilsel, sözcüksel, anlamsal, biçimsel özellikler ve farklı dil kesitleri nedeniyle, tıp çevirisi etkinliği çevirmenler için zorlayıcı olabilir. Tıp

çevirisi, ilgili tıbbi alanlar ve terminolojik veriler hakkında önceden araştırma yapılmasını gerektirir. Erek kitlenin beklentilerini karşılayabilecek işlevsel bir çeviri, çevirmenin bilgi, deneyim ve yaklaşımlarına bağlıdır. Bu çalışmanın amacı iki yönlüdür. İlk olarak, tıp metinlerinin çeviri sürecinde sorun yaratma potansiyeli olan özellikleri ele alınacaktır. Daha sonra, çevirmenin karşılaşılabileceği sorunların üstesinden gelinebilmesi için uygulanabilecek çeviri prosedürleri tartışılacaktır.

Anahtar kelimeler: Tıp Çevirisi, Tıp Terminolojisi, Çeviri Çalışmaları, Tıbbi Dil Kesitleri

Introduction

Medical translation is an important field of both translation and interpreting activity. Lots of medical documents, textbooks, clinical reports, package inserts, patient information booklets, medical articles and similar clinical works are translated every day to meet the high demand from hospitals, clinics, State authorities, medical institutions, and naturally the public. To put it another way, in medical fields, billions of words are translated in a day throughout the World. Medical translators are generally working with tight deadlines and using their medical databases, corpora, computer-assisted translation tools, machine translation systems and medical dictionaries in the process of translation. They should translate in a fast manner; and at the same time, the target texts should be consistent, accurate and functional.

Not only written translation but also oral translation or interpreting is a highly demanded activity in medicine. Liaison, consecutive, and simultaneous interpreters participate in medical seminars, conferences, congresses, and meetings. Interpreters serve as a bridge between medical professionals in these occasions. Interpreters also work in non-professional fields. For instance, community interpreters interpret between doctors and patients at hospitals. Besides interpreting, they realize sight translation which is the oral rendition of a written material such as a medical examination report.

Producing an accurate and acceptable translation is very crucial that an error could affect a medical process negatively and perhaps the individual's health. Therefore, identifying the features of medical texts and determining the parts that could be problematic for translators, and knowing the possible strategies to deal with translation problems beforehand are important phases within the process of medical translation. If these steps are considered deeply, the product or the target text would be more coherent, clear and complete. Dealing with terminology is a prerequisite for medical translators.

1. Terminological Content of Medical Texts

Understanding a medical text depends on the knowledge about the medical terminology of the prospective reader. Texts especially published in professional and academic journals include Latin and Greek derivations, suffixes and prefixes.

An estimation is that three-fourths of medical terminology is of Greek origin as a result of Greeks' being the founders of rational medicine during the term of Greek civilization in the 5th century B.C. (Banay, 1948: 1). It is possible to say the emergence of medical terminology, names of diseases or medical processes date back to ancient Greek Civilization. Hippocrates and

Galen from Greek origin have played an important role in the development of medical terminology.

Hippocrates claimed diseases had natural causes and became the first physician who separated medicine from superstitions. Galen suggested anatomy should be considered while clarifying medical cases (Erten, 2007: 18-19).

Another important reason for the dominance of Greek derivations in medical texts stems from the character of the Greek language. The Greek language is very suitable for creating compounds and new words to express new facts and conditions (Banay, 1948: 2). Language patterns of the Greek language facilitate the process of deriving new conceptions.

Latin effect on medical terminology is also undeniable. As the language of the Catholic Church, Latin has affected and shaped the western European languages and occupied a huge part of their vocabulary. Latin was also the language of science until the beginning of the 18th century and texts in medicine were written in Latin (Banay, 1948: 18). When it is considered medical texts could be regarded as scientific texts as per their contents, the prevalence of Latin words and derivations in medical texts is not a coincidence.

Another cause behind the Greek and Latin dominance in medical terminology is the advantages of Graeco-Latin terms as being international, objective, short and precise (Fogelberg and Petersson, quoted in Rask, 2008: 9). Medical texts are far from cultural aspects; because they particularly explain general facts, cases and processes which affect people throughout the World equally. Using an international language including Graeco-Latin terms facilitates the professional process for both writers and readers. Knowledge of Latin and Greek roots, and affixes helps understand the whole text, and background information on roots, suffixes and prefixes contributes the reader to analyze the medical texts and to make a componential analysis of medical terms (Banay, 1948: 1).

Terminological analysis of medical texts regarding Graeco-Latin terms is like finding and putting up the lost pieces of a puzzle. While pieces are combined, the picture clarifies step by step. This is the same case for grasping the message and the essential content of medical texts. When Greek and Latin roots, suffixes and prefixes are understood and combined, the text becomes clearer and more understandable. Learning medical terminology is similar to learning a new language (Erten, 2007: 49). The process requires patience, attention and working discipline. It is a prerequisite for a medical translator to work on Greek and Latin terminology for an effective understanding of the intended message of the text. In Table 1, a brief list of componential analysis of a few medical terms are given:

The term	Latin-Greek compounds	Meaning
Anaemia	<i>Ana</i> : not, without <i>Emia</i> : blood	a medical condition in which there are too few red cells in your blood, causing you to feel tired and look pale ¹ .
Arthritis	<i>Arthr(o)</i> : of or pertaining to the joints, limbs <i>Itis</i> : inflammation of the part named in the stem	a medical condition in which the joints in someone's body are swollen and painful ² .
Dyspepsia	<i>Dys</i> : bad, difficult, defective <i>Pepsis</i> : digestion	pain caused by difficulty in digesting food ³ .
Thrombosis	<i>Thromb(o)</i> : clotting of blood <i>Os</i> : condition, process	the formation of a blood clot in a person's heart or in one of their blood vessels, which can cause death ⁴ .

Table 1. Componential Analysis of Medical Terms

Medical terms in Turkish medical texts, especially in academic and professional ones, enter the Turkish language system by the method of transcription/borrowing. This transcription is mainly phonetic, and phonetic features of the source language are kept while transcribing the term into Turkish. As well as transferring phonological characteristics of a source term, the newly coined term is adapted to the orthographic features of the Turkish language. For instance, words are usually pronounced as written in Turkish, therefore English terms are adapted to Turkish as pronounced in English and that is a phonological factor: genetic component (EN) becomes *genetik komponent* (TR). Transcription should be realized by taking morphological, grammatical, and spelling characteristics of the target language into consideration. For instance, three consonants cannot be sequenced in one syllable in Turkish; so, hyperglycemia (EN) becomes *hiperglisemi* (TR). Orthographical adaptation is also as crucial as phonological adaptation. Method of borrowing serves the global, international and objective character of the professional medical language.

¹ <https://www.collinsdictionary.com/dictionary/english/anaemia>

² <https://www.collinsdictionary.com/dictionary/english/arthritis>

³ <https://www.oxfordlearnersdictionaries.com/definition/english/dyspepsia?q=Dyspepsia>

⁴ <https://www.collinsdictionary.com/dictionary/english/thrombosis>

Source Term (EN)	Target Term (TR)
autoimmunity	otoimmünite
extremity	ekstremit
inflammation	inflamasyon
pathogenesis	patogenez

Table 2. Translation of medical terms by borrowing

While borrowing is used as a translation method in the process of translating medical terms in professional texts, it will not be an appropriate method for the translation of terms in popular texts which address to laypeople. In the following chapter, this case will be discussed in detail.

2. Medical Text Types

Peter Newmark classifies medical texts as academic, professional and popular. According to this classification, academic texts are written with Latin and Greek derivations; professional texts include formal words; and popular texts are written for a lay readership with understandable terminology (Newmark, 1988: 153).

2.1. Characteristics of Academic Texts

Authors of academic texts generally have academic backgrounds and the texts include Latin and Greek words, suffixes and prefixes which could be perceived as peculiar for the laypeople.

Formal, professional, and complex language is used, long sentences including medical terms, and great many of medical definitions are common. High language/medical jargon which is far from daily or everyday language is preferred. The medical language is almost impossible for laypeople to understand even if the text is written in their mother tongue:

Behçet's disease is a multisystem inflammatory disorder characterized by recurrent oral ulcers, genital ulcers and ocular inflammation, and which frequently involves the joints, skin, central nervous system (CNS) and gastrointestinal tract (Marshall, 2004: 291).

Chronic, relapsing bilateral uveitis involving both the anterior and posterior uveal tracts is a significant cause of morbidity (Marshall, 2004: 294).

Passive voice, third-person singular and present simple tense are usually preferred:

Typical acute optic nerve lesions are characterized by T₂ hyperintensity, associated optic nerve swelling and contrast-enhancement (Filippi, et. al, 2019: 1869).

Lots of detailed statistical, scientific and empirical data are given:

Furthermore, a positive family history can be found in 12% of non-Caucasian patients and a sibling risk ratio of 11-52 in Turkish patients (Kappen, et. al., 2015: 471).

Terminology of interdisciplinary fields, the results from combined and comprehensive studies carried out with other branches such as biology, chemistry, genetics, pharmaceuticals, and medical, software or mechanical engineering are observed:

An important consideration is that the use of combinations of biologic agents, such as TNFis and IL-1 inhibitor (etanercept and anakinra) or TNFis and T-cell costimulatory inhibitor (etanercept and abatacept) appeared to increase the risk of serious infections even further (Her and Kavanaugh, 2016: 19).

In addition to single lexical items, lots of medical phrases and compounds are encountered in this type:

An important detail that merits consideration here is that the clot in the *pulmonary arteries* in HSS or BD arises mostly due to the *arterial vasculitis* rather than *venous thromboembolism*, especially in patients without deep *venous thrombosis* (Khalid and Saleem, 2011)⁵.

Intertextuality is generally observed in academic texts. Texts include lots of references to the resources such as medical books, journals, clinical findings, experimental studies, annals, reviews, and seminars.

Texts contain general and universal truths, objective data mostly retrieved from empirical studies. Since the process of the disease or medical condition, symptoms and treatment methods are similar across different parts of the World, academic texts do not include cultural elements.

2.2. Features of Professional Texts

Authors of professional texts are generally medical experts and doctors. Texts include medical terminology that could easily be understood by medical staff. As in the academic texts, professional texts include Latin and Greek derivations, suffixes and prefixes, creating an international medical language.

The texts contain findings of clinical studies; but giving more general information than academic medical texts. They are written with a formal style, giving statistical information about medical cases for professional readership:

Arthralgia and/or arthritis occur in 45% of cases. They are frequently the presenting feature, long before the other manifestations (Saadoun and Wechsler, 2012).

Professional texts are generally written for publication in medical journals, reviews, medical encyclopedias, websites with medical content and in official platforms organized for medical staff.

2.3. Characteristics of Popular Medical Texts

Besides being written by medical experts, popular texts could also be anonymous, for example they may be produced by a medical institution or organization. Texts could appear as medical information on periodical magazines and daily newspapers or as a booklet prepared by a hospital or medical institute for patients to take some measures about their health. Texts are usually published for the public in order to inform them about a certain disease or medical case, mostly including the definition of the case, symptoms, process and treatment methods.

⁵ Italics belong to the author of this article.

In popular texts, daily language is used to enable readers to grasp important points and to make the whole text more readable and understandable. The main aim of popular medical texts is to guarantee fluency and consistency. It could not be expected from laypeople to know relevant medical terminology or medical processes; therefore, authors or institutions that publish popular texts strive to render functionally the most optimal texts for target readers, patients or semi-professionals and enable them to follow crucial content more easily:

Symptoms of a heart attack:

Pain or discomfort in your chest that doesn't go away.

The pain may spread to your left or right arm or may spread to your neck and jaw.

You may feel sick or short of breath⁶.

If professional medical terms are used, they are generally explained in parentheses as additional information or via an explication with daily terms and popular language to contribute to the understanding:

Breast cancer is a cancer that forms in the tissues of the breast – usually in the ducts (tubes that carry milk to the nipple) or lobules (glands that make milk). It occurs in both men and women, although male breast cancer is rare (ESMO Patients Guide)⁷.

Dialogical language is usually used to attract the attention of readers or patients. It is aimed to direct the reader to take precautions, use drugs, cope with the situation, etc. Imperative language also supports this aim:

Take these steps to monitor your health and practice social distancing:

1. Take your temperature with a thermometer two times a day and monitor for fever. Also watch for cough or trouble breathing.
2. Stay home and avoid contact with others. Do not go to work or school.
3. Keep your distance from others (about 6 feet or 2 meters) (Centers for Disease Control and Prevention, COVID 19)⁸.

Popular medical texts are target-oriented and mostly include practical information for patients rather than clinical findings, scientific results or experimental data. The content is limited to a brief definition of medical case or disease, prognosis, diagnosis and treatment. They are explained lightly with simple sentences and the purpose is to prevent readers to get lost in medical terminology or complex statements. Therefore, readers do not become disrupted while reading. Use of the second person is observed to reinforce the dialogue between medical staff and readers:

Don't use smoking, alcohol or other drugs to deal with your emotions.

If you feel overwhelmed, talk to a health worker or counsellor. Have a plan, where to go to and how to seek help for physical and mental health needs if required (Coping with stress during the 2019-nCoV outbreak, WHO Report)⁹.

⁶ <https://www.bhf.org.uk/informationsupport/publications/heart-conditions/heart-attack---your-quick-guide>

⁷ <https://www.esmo.org/for-patients/patient-guides/breast-cancer>

⁸ <https://www.cdc.gov/coronavirus/2019-ncov/downloads/COVID19-Traveler-Info-Card.pdf>

⁹ https://www.who.int/docs/default-source/coronaviruse/coping-with-stress.pdf?sfvrsn=9845bc3a_2

Popular texts are written with an informal style. They try to answer the frequently asked questions. The purpose here is to contribute readers to get rid of concerns about their current situation and help them make predictions about their possible future conditions.

When compared to academic and professional texts, popular texts contain more paratextual elements such as bold and colored characters, underlined expressions, big fonts, etc. Components of paratextuality are used to direct the reader to think and act in a preferred way, to prevent the spread of a disease, or not to delay examinations and treatments.

Multimodality is used in conjunction with paratextuality in popular texts. A multimodal text is the one that is comprised of more than one mode of communication. That's to say, popular texts include not only the linguistic mode, but also visual, and aural modes, serving the operative character.

After giving information about the characteristics of medical text types, the main translation procedures for each type will be explained in the next section.

3. Medical Translation

Katharina Reiss classifies texts as informative, expressive, operative, and audiomedial. Medical texts are generally regarded as informative texts. Here is a summary of the basic features of informative texts:

‘Plain communication of facts’: information, opinions, etc. The language dimension used to transmit the information is logical or referential, the content or ‘topic’ is the main focus of the communication, and the text type is **informative** (Reiss, quoted in Munday, 2008: 72).

Content is more important than form or aesthetic considerations in medical texts due to their crucial aim of transferring the intended message to readers. This message may include information about diseases, drugs, treatment processes, new findings in medical fields, etc.

Popular texts are informative such as academic and professional medical texts; but some popular texts could be regarded as hybrid texts, having a vocative/operative function that urges the patients or readers to act in a certain way, such as taking some measures, using drugs regularly or consulting their physician when necessary. Operative texts have the purpose of convincing people. The text type tries to motivate people to behave in a desired manner:

‘Inducing behavioural responses’: the aim of the appellative function is to appeal to or persuade the reader or ‘receiver’ of the text to act in a certain way. The form of language is dialogic, the focus is appellative (Reiss, quoted in Munday, 2008: 72).

Medical texts that fall into that category include advice from medical staff and statements that can help patients know about diseases and take necessary steps. Therefore, while academic and professional texts could be accepted as informative; popular medical texts could be both informative and operative, gaining a hybrid character. At this point, it will be worthwhile to mention the medical registers.

Naomi James Sutcliffe de Moraes classifies medical registers as *doctor-to-doctor*, *doctor-to-patient* and *patient-to-patient*. Medical articles and laboratory reports are written with *doctor-to-doctor* register, medication inserts, marketing material and instructions are considered as

doctor-to-patient, and material provided by charities and organizations can be accepted as *patient-to-patient* register (2004: 31).

Doctor-to-doctor register includes professional medical terminology, high medical jargon, domain-specific language, complex content and structures in accordance with the international character of medical texts.

Doctor-to-patient texts are written by professional staff for patients or a lay readership. Professionals simplify medical expressions in order to enable readers to understand these expressions. Exemplification is used and general explanations for medical cases are given in daily language. Creating an effective dialogue between the medical expert and the patient is the main aim of this register.

Patient-to-patient register is the one written by non-professionals to non-professionals. Texts of this register include general information about diseases or conditions, quick-fix solutions for medical problems, necessary contact points about the treatment of diseases. Texts are written in a less formal and complicated tone. The aim of patient-to-patient texts is mostly establishing a network among patients, patient organizations and charities. Below are a few excerpts of medical registers.

Doctor-to-doctor register:

It is immunosuppressive drugs that are useful in the controlling of atopic dermatitis, can also use for psoriasis. It may be topical steroid application may have trouble some side effects (Sowmya, 2018: 9).

Doctor-to-patient register:

Before injecting, patients may remove the carton from the refrigerator and allow to reach room temperature out of direct sunlight (15 to 30 minutes) without removing the prefilled syringes from the carton (from a medication insert)¹⁰.

Patient-to-patient register:

Hello, I've had plaque psoriasis on my knees, elbows and ears since I was young. I now tend to manage my psoriasis with moisturiser, after several years of trying different prescriptions and light therapy (from a patient's forum)¹¹.

Academic and professional medical texts could be regarded as written with *doctor-to-doctor* register and popular medical texts could be regarded as written with *doctor-to-patient* register.

Moraes comes to a point that medical registers may be divided into three general categories and these are *medical register*, *general register* and *mixed register* (Moraes, 2010: 5). When compared to Newmark's typology, the medical register could be observed in academic and professional texts; and the general register is seen in popular texts. A mixed register is the one usually used in hybrid texts.

Translation of academic medical texts, written with a high/domain-specific language which is mostly understandable among academic staff of medicine and relevant fields, should

¹⁰ <https://www.skyrizihcp.com/>

¹¹ <https://www.psoriasis-association.org.uk/forums/topic.aspx?ID=3402>

be done meticulously and precisely in order to render the informative message to readers correctly.

Written with medical jargon, professional medical texts are generally published in medical journals and these texts should also be translated cautiously in order to guarantee good and effective communication among medical experts.

As in any other specific field, a medical translator of academic and professional texts has to gain information about the subject of the source text, read lots of relevant articles, journals, booklets, seminar papers, etc. and become familiar with the subject to be translated.

The main challenge of medical translation is Latin and Greek derivations, suffixes and prefixes. The translator should know about these terms and guess the meaning of the words while translating. Facilitating translating activity, it will shorten the required process of translation.

It could not be expected from a translator to know about medical cases, diseases, treatments, and meanings of all medical terms. Hence, a medical translator could firstly work on the terminology of the source text. This phase is the terminological analysis of the source text. Especially, if a translator translates from mother tongue to the foreign language, intralingual translation would be helpful to overcome difficulties. It should not be forgotten that a translator cannot translate a word without understanding it. Term banks, termbases, medical corpora, and machine translation could be used for terminological research.

The translator is liable to keep the formal and official language of a professional text while rendering the content in the target language. Sentence structures, the format of the source text should be transferred in accordance with the translation brief, and the sequence of word compounds, chemical and biological formulas should also be translated with great attention.

Academic and professional texts are informative, and the translator takes this feature into account within the translating process. Target readership is comprised of expert medical staff, they could easily understand the content of the text due to their medical backgrounds, knowledge, and experience; therefore, translation is realized in a more source-oriented manner with a fidelity to the choices, wording, and methods of the author. However, the target text should also be read fluently and consistently.

Newmark describes the first aim of the medical translator as creating factual textual accuracy and the second one as a natural sincere mode of writing that will attract the attention of target readers (Newmark, 1979: 1405).

As the translator is not an authoritative body or expert on medicine, proofreading could be done by an expert from the medical field. A quality target text is a result of deep cooperation between the translator(s) and the expert(s).

Unlike academic and professional texts, popular medical texts are written for people without any experience and expertise on medical cases or terminology. As readership of this text group includes laypeople, the translator should take this into consideration while translating. Translation of popular medical texts should, therefore, be target-oriented fulfilling the needs and expectations of target readers. Translators of this type also serve as medical text writers, knowing the features of the texts, word and phrase choices.

Popular texts are written in a simple way with short sentences usually in a dialogical tone. The translator keeps the features of the source text, its nonofficial and informal tone. Background information and pre-reading activities of similar texts both in source and target languages published in health care magazines, newspapers or patient booklets could contribute to the performance of the translator.

The translator strives to produce an acceptable translation to be adapted by target readers. Knowledge of readers, their educational and cultural backgrounds should be considered to determine the tone, style and terminology of the target text.

The mission of the translator is shaped to create a functional target text that affects patients or other target groups directly, to make them understand the importance of the situation and urge them to act in an appropriate way, especially in treatment processes. Therefore, the translator reflects the operative character of the source text.

The translator analyzes the source text and takes its readership into consideration, s/he should optimize the text in order to enable readers to understand certain points. This could be realized as simplifying professional terminology, cutting off long sentences, transforming the tone of the source text into a warm and dialogical one.

Translation of medical texts requires good communication skills of the translator to render the message in a convenient manner. As a communication expert, the translator becomes a bridge between the medical author and the readers.

Conclusion

The medical translator should be aware of his/her responsibility, be self-confident and open to criticism and new innovations. Medical translation may be regarded as one of the most specific and serious fields of translation where the life and health of the people are the main concern. Inadequate translation of a drug use may cause negative results for the patient and delay the process of treatment, or erroneous translation of a newly introduced operation method may result in serious consequences, affecting medical staff disadvantageously who will apply the method. Editing and proofreading of the target text are also important phases in order to make necessary revisions.

Medical translation is a challenging task for the translator. Firstly, a medical translator should have a gist about medical conditions and terminological knowledge. Terminological and textual analysis is crucial to have a favorable process of translating. Medical texts should be translated in compliance with their registers. The target text which has been translated regardless of the relevant register, could possibly be complex and obscure for the target readership. Translating academic and professional texts requires using a medical register, domain-specific language, high terminology and more complex sentence structures. On the other hand, translating popular medical texts should be realized by using a general register. In accordance with the translation brief, explications, additions, omitting, and exemplification are tolerated in the process of translating popular texts. However, one should bear in mind that while making the adjustments in order to facilitate the comprehension of the target text by laypeople, there should be no loss of information.

The characteristics of the target group determine the approaches and procedures of the translation. Therefore, taking the socio-cultural and educational background of target readership into consideration is crucial to establish an appropriate and complete target text. For instance, the method of borrowing is preferred in the translation of academic/professional texts; but literal translation and explication are chosen while translating medical terms in popular texts.

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