

## Persian Medical Terms, Naming and Morphosemantic Factors: A Discussion in Medical Translation

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### Abstract

The language of medicine with its morphologically complex words will provide considerable and interesting issues that can be studied by both linguists and translators. Lot of surveys were done previously to analyze the language of these most ancient medical records, but the study on the development of Persian medical terminology is limited in number. This paper provides a brief terminological description of the selected English medical terms and their equivalents in the Persian language. The data consisting of 339 medical terms chosen under the “Connective Tissue and Musculoskeletal System” of the International Classification of Diseases, 9<sup>th</sup> Revision, Clinical Modification (ICD-9-CM) and their equivalents in the Persian language are selected for this study. The target terms are compared and analyzed based on the secondary term formation processes, with regard to morphosemantic factors. The quantitative and qualitative analyses of the data indicate that various morphosemantic factors are involved in the secondary term formation processes of the Persian medical terms. The findings demonstrate that the most of the incompatible equivalents have been found in lexicology area; while semantic problems in them cover smaller proportion. Derivational capability and compliance with the language rules are two morphosemantic factors which need further attention in Persian language.

**Keywords:** medical translation, Persian medical terms, morphosemantic factors, naming medical terms

### 1. Introduction

Fischbach (1986, p. 16) believes that the medical and religious translations are the most global and ancient fields of scientific translations, since the human body is homogeneously ubiquitous. Plenty of medical words are created alongside developing technology as medical science is progressing every day. This is also true for the new areas in medical science involving special words and terms. When first confronted with the medical terms, an average person is often bewildered by the strange spelling and pronunciation. The terms accompanying the transfer of scientific and technological knowledge from one linguistic society to another basically differ from the terms which belong to scientific and technological innovations: “while the latter is spontaneous, the former can be designed and engineered”. Catford (1965) believes that finding equivalents in the target language is accounted as the main difficulty in translation practice. The problem appears when some new ideas and new methods in sciences are involved or once a scientific community focuses other linguistic groups (Sager, 1990, p. 81). Conferences, articles in journals, and now databases are the passages through which the new scientific terms formed in a linguistic community may be transferred promptly to other scientific communities with different languages. One of the most important reasons is lack of accuracy in word designation. Yazdi & Bedayat (2003: 230-1) believe that a medical student who does not understand a particular equivalent will study the original concept in order to understand it.

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The Persian equivalent of a common concept does not carry perfect accuracy of the word. For example, “thoracotomy” is a term which is too specific for a medical student to have a Persian equivalent with any sufficient accuracy. Persian speakers do not have the accurate and concise resources in Persian language to find the equivalents for medical terms since they have not created such technology (Yazdi and Bedayat, 2003, pp. 230-1) This study evaluates the accuracy of the Persian medical terms or equivalents based on the morphosemantic factors in linguistics.

## 2. Literature Review

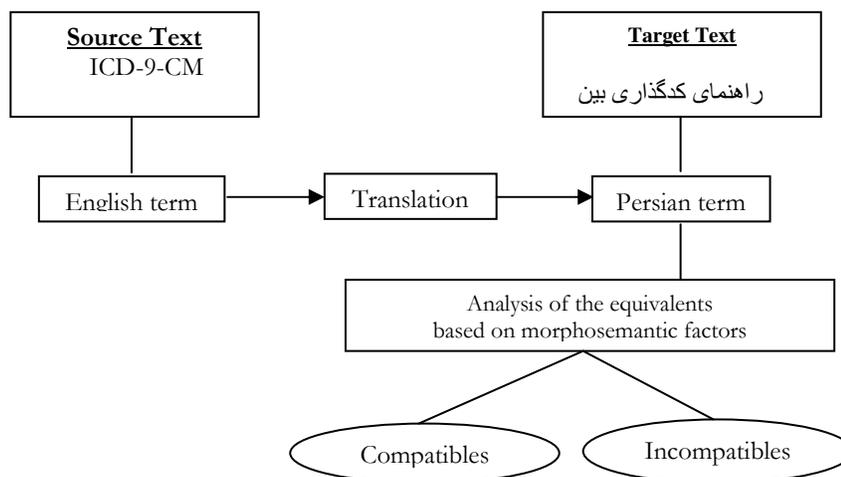
Morphosemantics is generally a knowledge in linguistics, speaking about morphological analysis combined with a semantic interpretation of words. Accuracy or publicity of a new term is evaluated based on four terminological factors suggested by Meyer and Bowker (2006, p. 117) which belong to morphosemantics in linguistics. Conciseness, absence of competing terms, derivative form capability, and compliance with the rules of the language are the four factors that can all contribute to the effectiveness of the applied translation procedures in translating the English medical terms into Persian. Medical translation is a poorly paid field, which is inevitably reflected in the quality and all these problems can explain the doctors’ resistance to the employment of the translated terms and their mutual consent and definitive incorporation into the profession’s terminology. It should be noted that “term” in term formation process is the same as “word” in word formation process, but happens in a special field. However, the location of naming occurrence (primary or secondary) is of utmost importance. Primary term formation is a process starting with concept formation in a scientific area. Such a process is out of external control, and is therefore monolingual and affected by “existing patterns of terms already created”. Secondary term formation occurs when a new term appears for a recognized concept in another linguistic community. Sager (1990) believes that: “The fundamental difference between the two methods lies in the fact that in primary term formation there is no linguistic precedent, though there may be more or less strict rules for the formation of appropriate terms, whereas in secondary term formation, there always is the precedent of an existent term with its own motivation. ...The new term to be created must then be justified in some way and this justification may include reference to the form of existent terms. Secondary term formation is more often subject to guidelines than primary term formation and it may be said that it is the proper concern of terminologists to provide such guidelines on the basis of the term and word formation patterns of the subject field and natural language in question” (pp. 80-81). The scientific terminology and general language vocabularies are susceptible to planning all the time as they have been constructed based on conscious term creation, while the terminology of technology likely remains unchanged as the created terminology based on secondary term formation process deals with concepts borrowed from another linguistic community (Sager, 1990, p. 81).

With regard to the practical problems, Baker (2005, pp. 253-4) believes that such problems are the same all over the world; industrially highly developed linguistic communities differ from less developed ones practically. According to Rustae (1999, p. 168), the lexicon approved by Persian Language Academy has been semantically and pragmatically evaluated by some researchers. Medicine has been found at the seventh rank, indicating that there are no more places in the Persian language for previous Arabic terms developed in medical fields already. He argues that Persian language history already presented itself with one disadvantage and one weakness. He describes its disadvantage with its excessive blending words from different languages; and explains its weakness through lack of effective equivalents for new scientific terms. However, he believes that Persian today not only still faces the same problems, but also its disadvantage now includes Latin words; and its weakness is its disability to find equivalents promptly for the ever-increasing imported terms, especially those with Latin origin. Linguistically, Persian is a member of the Indo-European family of languages (Baqeri, 2005, p. 12). According to NMELRC (c. 2006, p. 2), after the Islamic conquest of Persia in the year 650 A.D., Arabic has affected the most significant change in the Persian language. Over the years, the Persian language has borrowed up to half of its vocabulary as well as certain grammatical elements from Arabic. The major reason for this inability, according to Kafi (1984), can be attributed to the lack of appropriate scientific Persian equivalent. However, he believes that the Persian language possesses a high potentiality for generating scientific lexicon. He explains that the Persian language contains two fantastic capabilities simultaneously which can rarely be found in any other language - combinational and derivational potentialities.

This study goes through the Persian medical terms to investigate how extent is, the employment of Persian language capabilities in the processes of English-Persian medical terms translation, and generally if such words follow the local and universal naming criteria or not. In this study, word formation structures of the Persian equivalents have been processed according to the morphosemantic factors for naming.

### 3. Methods

The selected area for this study is the area of medicine which involves diseases or disorders and procedures or surgical operations. The scope of ‘the musculoskeletal system and connective tissues’ in ICD-9-CM was used as the source texts while ‘راهنمای کدگذاری بین المللی بیماریها’ (Guide to ICD-9-CM in Persian) was used as the target text. This study attempted to investigate selected English medical terms whose equivalent pairs are available in the target source. The analysis focused on the characteristics resulted from the Persian terms with regards to the guidelines provided by ISO and the morphosemantic factors for naming. Below, Figure 1 illustrates the discussion procedure of the study.



**Figure 1 - Methodology**

### 4. Findings

Following analysis of the equivalents, it has been resulted that the equivalents under this study can be divided or classified into two groups of compatibles and incompatibles. The compatible terms are the ones which follow all the morphosemantic factors. For example, the meaning of “cervicobrachial” in the following example is “pertaining to neck and arm”. This word is a Latin adjective compound term (Dorland’s medical dictionary), consisted of “cervico-” (neck) and “brachi” (arm) which are both roots and “al” which is a suffix with influence on both mentioned morphemes. It embraces two derivations of “cervical” and “brachial” (cervical + brachial = cervicobrachial).

## Example 1 – Cervicobrachial: گردنی بازویی

<b>English Term</b>	<b>Cervicobrachial</b>			
<b>Equivalent in Persian</b>	گردنی بازویی (gardan + i + bāzuy + i)			
<b>Gloss</b>	neck + adj. maker + arm + adj. maker			
<b>Back Translation</b>	pertaining to neck and arm			
<b>Parts of Speech</b>	adjective			
<b>Morphological Analysis</b>	gardan	i	bāzu	i
	[neck]		[arm]	
	root	suffix	root	suffix
	free	bound	free	bound
<b>Tabatabaee's Persian Structure</b>	Adj + - + Adj			
<b>Morphosyntactic Structure</b>	Adj <sub>nuc</sub> + Adj <sub>nuc</sub>			
<b>Word Formation</b>	Derivation		Derivation	
<b>Translation Procedure</b>	Through Translation			
<b>Morphosemantic Factors</b>	Positive Factors			

It should be noted that there is no such potentiality in Persian language like the source language. Therefore, the translator must apply the derivation process on each morpheme, respectively. Its translated word in Persian, as an equivalent, is [gardani bāzuyi] composed of two independent words. Thus, the result would be the words which are not related together grammatically. The morpheme [i], as an adjectival suffix, is observed in both Persian words. In Persian, suffix morpheme can be embedded in only one word and cannot be shared for even two words. Therefore, here the translator is required to produce two independent adjective words which do not make a phrase. In this example, the translation procedure is Through Translation since “cervicobrachial” is a compound word. It has been observed that [gardani bāzuyi] relates directly to the concepts received from “cervicobrachial”, as [gardani] is the exact equivalent for “cervical” and [bāzuyi] is the exact equivalent for “brachial” and [i] in both words functions as an adjectival suffix for “al”. This equivalent, composed of two independent words of [gardani] (adjective) and [bāzuyi] (adjective), follows Tabatabaee's structure: Adj. = Adj. + - + Adj. The equivalent is an adjective which has been constructed by adjective + adjective and is compatible with the general rules of word formation in Persian. It is a derived word in itself due to [i] which is an adjectival suffix, added to [gardan] and [bāzu] which are nouns. No other synonym or morphological variant has been found for it. It does not carry other meanings and no other word refers to the same concept as [gardani bāzuyi]. This equivalent is independent of context and does not overlap in meaning with any other term or word. Therefore, it is compatible with all the morphosemantic factors for naming. In other words such compatible terms automatically present those features of translation procedures which are effective for naming the Persian medical terms. “Cervicalgia,” in example 4, refers to the “pain in neck region”.

**Example 2 – Cervicalgia: درد گردن**

<b>English Term</b>	<b>Cervicalgia</b>	
<b>Equivalent in Persian</b>	درد گردن (dard-e + gardan)	
<b>Gloss</b>	pain-Ø + neck	
<b>Back Translation</b>	pain in neck	
<b>Parts of Speech</b>	noun phrase	
<b>Morphological Analysis</b>	dard	gardan
	[pain]	[neck]
	root	root
	free	free
<b>Tabatabaee's Persian Structure</b>	Noun+ Noun	
<b>Morphosyntactic Structure</b>	Noun <sub>nuc</sub> + Noun <sub>mod</sub>	
<b>Word Formation</b>	Compounding	
<b>Translation Procedure</b>	Shift	
<b>Morphosemantic Factors</b>	-F2	

Morphologically, this Greco-Latin term (Dorland's medical dictionary), as a noun, has been constructed by two morphemes of "cervic-" (neck) and "-algia" (pain). Its equivalent, as the result of the translation process in the target text, is [dard-e gardan] "درد گردن" in Persian language. [dard-e gardan] is a noun phrase made up of two nouns of [dard] (pain) and [gardan] (neck). Therefore, grammatically, the noun structure in the source language is converted into a noun phrase in the target language. Accordingly, the equivalent is incompatible with the 2<sup>nd</sup> morphosemantic factor (F2), as [gardandard] is another synonym for [darde gardan] which is considered to be one word. Therefore, such terms or words are incompatible with all or some of the naming requirements for naming. In other words such incompatible terms automatically present those features of translation procedures which are ineffective for naming the Persian medical terms. Analyzing the data through statistical descriptive methodology, all the collected data has been described and then converted to numerical format and subjected to statistical analyses. The study goes through discussing the similarities and differences of the frequent occurrences of compatibilities to find effective and ineffective translation procedures involved in translation processes of the English medical terms into Persian. As mentioned earlier, there are four terminological factors which contribute to the acceptance of a term in a society. These factors are the naming factors presented by Meyer and Bowker (2006, p. 117) which, here, are considered as morphosemantic factors in the target text for finding an equivalent in a translation process:

- Factor 1 - "Conciseness"
- Factor 2 - "No competing terms"
- Factor 3 - "Derivative form capability"
- Factor 4 - "Compliance with rules of the language"

It is indicated that factors 1 and 2 are in the field of semantics, while other factors are discussed in lexicology area. The occurrence frequencies of the incompatible terms based on the morphosemantic factors have been illustrated in the following table. From the data, it is understood that F3 appears with the highest frequency in the incompatible terms. It means that around 52 percent of the incompatible equivalents do not show derivational capability. F2 is located at the 2<sup>nd</sup> rank with the occurrence of about 33% among incompatible equivalents. It defines that such terms appear with some competing terms. The fourth factor has found its location at the 3<sup>rd</sup> rank of significance, indicating no compliance with the rules of the language. F1 which refers to conciseness, with a frequency of about 6%, is located at the last rank. Summarizing the frequencies mentioned above, the lexical knowledge area of the most incompatible frequencies will be clarified as below:

**Table 1 - Frequency and Percentage of the Incompatible Equivalents**

Lexical Knowledge	Morphosemantic Factors	Frequency	Percentage
Semantics	F1 and F2	130	38.34
Lexicology	F3 and F4	201	59.29

The above table indicates that the most significant problem with the translation process of the English medical terms into Persian belongs to lexicology area which covers F1 and F2, comparing semantic area which is included by F3 and F4.

## 5. Conclusion

This study investigated compatibility distribution of the Persian equivalents as Persian medical terms based on morph semantic factors for naming. It is part of the whole research study leading to find the effective translation procedures in translating English medical terms into Persian. For the sample chosen in this study, the findings show that most of the incompatible equivalents (around 60%) are incompatible in lexicology area; while semantic problems in them cover about 40%. It means that the most problem with the translation process of the English medical terms into Persian belongs to lexicology area which covers F3 and F4, comparing semantic area which is included by F1 and F2. In the other words, Persian language should focus on lexicology in secondary term formation of the English medical terms rather than semantics; while the latter area needs also a special concern in itself. Therefore, derivational capability and compliance with the language rules are two morph semantic factors which need further attention in Persian language. Due to the scope of the study, the findings resulted from the data analysis observed in this study might not necessarily reflect all the languages involved in the translation procedure for all the Persian medical terms of other human body systems mentioned in ICD-9-CM. Further research on the other human body systems is recommended for higher reliability. Comparing the resulted findings and conclusions by further researches with the findings and conclusion of this study will conduct us to more reliable and fundamental translation approaches.

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