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THE USE OF ACRONYMS IN NURSING ENGLISH: IMPLICATIONS FOR THE DEVELOPMENT OF COMMUNICATIVE COMPETENCE

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This paper analyzes the use of acronyms in nursing English, and its implications for the development of the communicative competence of the speakers of this special language. The starting assumption is that profuse use of acronyms is a defining feature of scientific genre and hence of nursing language. Evidence for this assumption is provided by the data obtained from a corpus of articles published in specialized nursing journals. The paper is organized as follows. First, the term 'acronym' is defined. Then, nursing acronyms are classified according to their degree of lexicalization. Next, I focus on acronym formation. Finally, I deal with the rules that govern acronym usage, and examine several examples to see both compliance and non-compliance with these rules. From the analysis of these examples, several conclusions are drawn.

Key words: acronym, special language, nursing English, communicative competence

1. Introduction

The use of acronyms is one of the defining characteristics of scientific genre

and hence of all special languages[1] that can be included under the term 'scientific'. One of these languages is that of nursing, which I consider to be a subset of the language of medicine, in such a way that they both have many characteristics in common but also certain differentiating features[2].

Acronyming is a lexical device that involves the reduction of both Noun Phrases and individual words, and that provides speakers with a way of creating neologisms that are not only linguistically economical, but also euphonic and mnemonic. This is crucial for the language of nursing, which is made up of terms that are usually long (thus that are not economical) and morphologically complex (because most of them are formed by affixation, with affixes of Greek or Latin origin, and by lexicalizing Noun Phrases made up of two, three or even more words). Because of these reasons, acronyms are profusely used in nursing English. This fact implies that, for a speaker of this special language to be communicatively competent, he/she must be familiar with the rules that govern the use of acronyms.

This paper analyzes the conditions that govern the use of acronyms in published nursing texts. Firstly, I will define the term 'acronym'. Secondly, I will classify acronyms according to their degree of lexicalization. Next, I will deal with acronym formation, and then I will analyze acronym usage. Finally, some conclusions will be drawn from the analysis of the examples.

2. Definition of acronym

I am using the term 'acronym' here in the widest possible sense of the word, partially in accordance with the definition provided by Bauer, who says that an acronym is "a word coined by taking the initial letters of the words in a

[1] "A special language can be defined as the collection of spoken and written discourse on a subject related to a discipline" (Temmerman, 2000: 46)

[2] Broadly speaking, medicine and nursing share their terminology and are differentiated by their stylistic features, since the style is, to a certain extent, more informal in nursing than in medicine texts.

title or phrase and using them as a new word" (Bauer, 1983: 237). Another useful definition is that by Quirk et al., according to which acronyms are "words formed from the initial letters of words that make up a name" (Quirk et al., 1985: 1.581). Both definitions point out that acronyming is a lexical device used by the speakers of a given language to coin neologisms. Thus, the Noun Phrase 'acquired immunodeficiency syndrome' has given rise to the acronym 'AIDS', which is currently being used as a new word.

Acronyms can also be defined as opposed to abbreviations. Whereas the former must be included in the category of neologisms, the latter are not new words, but shorter written forms of already existing words or expressions. Thus, abbreviations are read out as the whole words they stand for, while acronyms are read out as new words. Consequently, the oral realization is the safest criterion to distinguish an acronym from an abbreviation. For example, 'HIV' ('human immunodeficiency virus') is read out as the sequence of phonemes h-i-v, whereas 'Dr.' is read out as its base word, i.e. 'doctor'. Additionally, in many cases, acronyms can also be distinguished from abbreviations thanks to their orthographic features. Acronyms are written in capital letters, usually without periods separating them, while abbreviations are written in lower-case letters and sometimes end in a period. These orthographic distinctions can be helpful, particularly when we focus on nursing written discourse.

3. Classification of acronyms

There are three different types of acronyms according to their degree of lexicalization or standardization. The first type includes those that are universally accepted and used by the international scientific community (for example, the names of hormones; 'FSH', 'follicle-stimulating hormone'). The second type of acronyms are those that are well known and established thanks to the frequency of their use ('DNA', 'deoxyribonucleic acid'). Finally, a third group is formed by those acronyms which are coined more or less *ad hoc* by an individual author for the sake of convenience (for instance, to meet the requirements of specialized journals, such as the number of words an article must have in order to be published). These acronyms are the

ones which pose the majority of problems that can be derived from their use in nursing English.

With regard to this, we must bear in mind that any scientific language intends to have a universal character, because its main goal is to diffuse scientific knowledge. For this reason, scientific terminology is supposed to be standardized. However, this objective is becoming increasingly difficult to reach, because of a number of factors. One of them is the speed at which new scientific discoveries are made and also communicated by means of specialized journals, conferences and seminars, and the new information technologies (mainly, the Internet). Another factor is the fact that several groups of specialists, who work simultaneously, may coin different terms to name identical concepts. Finally, since English has become the *lingua franca* of science, many terms are originally coined in languages other than English and then have to be translated. All these factors cause medicine and nursing terms to be greatly unstable and non-standardized. The potential problems that can arise from this unstable character of medicine and nursing terminology are even worse when the terms in question are acronyms, because acronyms are not descriptive terms, since they are etymologically empty words (Aleixandre et al., 1995: 116).

Because of all the reasons mentioned above, nursing acronyms have certain specific linguistic features. The first one is that many of them are homonymous, that is, a single acronym may receive different interpretations depending on the context. For example, the acronym 'CNS' usually means 'central nervous system'; in fact, this is the only definition we can find in *Stedman's Medical Dictionary* (2000: 371). However, in the following example, the meaning is different:

(1) Knowledge about the effects of this type of work and awareness of the related literature is critical for CNSs who treat/educate adults with FMS (Karper et al., 2001)

It is obvious that 'CNSs' cannot mean 'central nervous systems' here, because of the context; instead, it means 'clinical nurse specialists'.

Homonymy is a semantic feature that standardized scientific terms are supposed NOT to have, but it is such a frequent feature of acronyms that, in some cases, certain orthographic conventions are employed in order to avoid it. For example, the acronym 'REM' is written in capital letters to mean 'rapid eye movement', but it is written in lower-case letters ('rem') to mean 'roentgen-equivalent-man'.

On the other hand, certain acronyms are synonymous, which means that more than a single acronym may be used to make reference to a single concept. For example, both 'ECG' and 'EKG' can be used to abbreviate the term 'electrocardiogram', as shown by the following extracts:

(2) Second, events caused by the stroke itself (...) can cause arrhythmias such as bradycardia, premature ventricular contractions, supraventricular tachycardia, and atrioventricular block. So getting a baseline ECG is essential (Mower, 1997: 36)
(3) The most common EKG changes observed in AMI are S-T segment elevations, the development of a Q wave, and inverted T waves (Siomko, 2000)

In this particular example, the cause of the synonymy is that the word 'electrocardiogram' is of German origin, and many speakers choose to keep the original spelling. However, the terms 'ECG' and 'EKG' are not too problematic because both acronyms are rather well-known, and the synonymy, as we have seen, has an etymological origin. But there are other cases that prove the lack of standardization of medicine and nursing terminology. For example, the acronyms 'FFA' ('free fatty acid') and 'UFA' ('unesterified fatty acid') both designate the same concept, namely, "free fatty acids which occur in plasma as a result of lipolysis in adipose tissue" (*Stedman's Medical Dictionary*, 2000: 654). The problem is that the full expressions are much more easily interpreted than their acronymic forms, so the potential difficulties created by synonymy of specialized terms increase when these terms are acronyms.

4. Acronym formation

Another relevant aspect of acronyms is the way they are formed. The general rule for acronym formation could be stated as follows: an acronym is formed by taking the initial letters of the words in a Noun Phrase, except the initials of grammar words (that is, articles, prepositions or conjunctions). Then, from the Noun Phrase 'Food and Drug Administration' we obtain the acronym 'FDA', which includes the initial (and only the initial) of the three nouns and ignores the conjunction. However, "the phrase from which the acronym is taken is treated with a certain amount of freedom to permit the acronym to arise", and "the interests of the acronym are the deciding factor in what the "initial letters" of the phrase will be taken to include" (Bauer, 1983: 237). The lack of predictability in acronym formation is explained by the fact that the main purpose of acronyms is to create a term that is not only linguistically economical but also euphonic and mnemonic. Thus, an acronym may include the initial of a grammar word so that it can be pronounced as a word instead of a sequence of letters ('AFORMED', 'Alternating Failure Of Response, Mechanical, to Electrical Depolarization'). For the same reasons, there are some cases in which the acronym is formed by taking more than the initial letter of some of the words in the base ('TRIC', 'TRachoma Inclusion Conjunctivitis'). There are even cases in which the initials of one or more words in the base are not included ('VATER', 'Vertebral defects, imperforate Anus, TracheoEsophageal atresia, and Radial and Renal dysplasia').

It is also very frequent that one or more words in the base of certain acronyms are compound words. In some examples, the acronym includes the initial of just the first lexeme in the compound ('EMIT', 'Enzyme-Multiplied Immunoassay Technique'), whereas in other cases the acronym takes the initial letters of both lexemes in the compound ('FIA', 'Fluorescent ImmunoAssay'). Additionally, very often acronyms include the initial of a prefix, together with the initial of the corresponding lexeme ('IUD', 'IntraUterine Device'). Finally, some acronyms are formed from a single compound noun instead of a whole Noun Phrase, what is explained by the

fact that nursing terminology includes a great number of compound words that are very frequently used ('GI', 'GastroIntestinal').

5. Acronym usage

So far, we have seen some of the formal characteristics of acronyms. But the most relevant aspect of this lexical device is the way it is used, that is, how it is exploited by the speakers of this type of scientific language and their reasons for doing so.

Regarding this issue, the first thing we must notice is that in almost every nursing text, we can find passages like that in example (4) below, where we have three acronyms in a single sentence:

(4) Many clinicians in Europe are using LMWH almost exclusively for high-risk DVT prophylaxis instead of low-dose UFH (Carroll, 2000)

Thus, profuse use of acronyms in nursing texts is a fact, to such an extent that it has become one of the defining features of nursing style. The implications for communicative competence seem obvious: as stated above, for a speaker of nursing English to be fully communicatively competent, he/she must be acquainted with the rules that govern the use of acronyms.

The problem is that these rules are rather difficult to elicit, because despite the importance this lexical phenomenon has acquired in the last decade, there are few specific norms and conventions which are universally accepted and followed. There is a very clear example that proves this. The International Committee of Medical Journal Editors publishes the so-called "Uniform Requirements for Manuscripts Submitted to Biomedical Journals", which are "instructions to authors on how to prepare manuscripts" (1997: 36) that are accepted and required by most biomedical journals. These requirements include no more than four lines on the use of abbreviations (whereas they offer detailed information on, for instance, how to organize the sections in the article, bibliographical citation, illustrations and figures, and so on). The same is true of most manuals of style.

The "Uniform Requirements" state three rules concerning the use of what the authors call "Abbreviations and Symbols":

> Use only standard abbreviations. Avoid abbreviations in the title and abstract. The full term for which an abbreviation stands should precede its first use in the text unless it is a standard unit of measurement (International Committee of Medical Journal Editors, 1997: 14)

The first problem we face here is that the word 'abbreviation' is being used to include such different things as symbols (for example, chemical symbols such as 'Cl', 'chlorine'), "true" abbreviations (for example, units of measurement; 'cm', 'centimeter'), and acronyms. It seems clear that the usage of lexical devices that are so different cannot be governed by the same rules.

In addition, even if we assume that these three rules concern the use of acronyms, we must face a second problem: in practice, they are being systematically violated or ignored, but the articles containing these violations of the norms are being accepted by editors and published in specialized journals. Probably, the explanation for this is that acronym usage is too complex to be summarized by means of three simple rules.

Let's see several examples of the use of acronyms in nursing articles that show both compliance and non-compliance with the rules mentioned above. The first rule is rather problematic, because it makes reference to "standard abbreviations". Actually, "true" abbreviations (such as units of measurement and symbols) are fairly standardized, because they are regulated by universal conventions, such as the International System of Units, but the same does not apply to acronyms. As commented above, very few acronyms are standardized and/or lexicalized. On the other hand, the concept of lexicalization is basically related to a much more problematic and subjective issue, namely, frequency of use. Thus, there are some examples of clearly lexicalized acronyms, such as 'AIDS'. This term is no longer perceived as an acronym, but as a new word, and evidence of this is that we can find it in many titles of nursing articles and in many texts where the author never provides the full term for which this acronym stands. Thus, rules 2 are 3 are violated in many instances. In example (5) below, the author

has chosen to include two acronyms in the title and in the abstract, and to leave them unexplained throughout the whole text.

(5) Abstract: As a result of major advances in treatment, persons with HIV/AIDS are living longer and requiring more care management (...)

Recent advances in the management of HIV/AIDS have led to significant declines in AIDS-related deaths. As the number of deaths decreases, more persons with AIDS are living longer, having fewer health problems, and requiring less acute care (Keithley et al., 2000)

But frequency of use and, consequently, lexicalization, are rather subjective concepts, to such an extent that what can be perceived as well-known and frequently used by certain authors cannot be so regarded by other authors. This problem is closely related to compliance and non-compliance with rule 3, so some examples will be analyzed below.

The second rule of acronym usage is that authors must not include acronyms in the titles of articles. This is the case in example (4) above, where the author uses the full Noun Phrases in the title ("Treating Deep Venous Thrombosis at Home with Low Molecular Weight Heparin"), and the corresponding acronymic terms in the text ('DVT' and 'LMWH'). But we can also find titles like those in examples (6) and (7):

(6) Title: "VRS & MRSA. Putting Bad Bugs out of Business"

Today, two antibiotic-resistant microbes are making headlines: vancomycin-resistant enterococcus (VRE) and methicillin-resistant *Staphylococcus aureus* (MRSA). Hospitals in more than 40 states have reported VRE, with rates as high as 14% in oncology units of large teaching hospitals. Once limited to large teaching hospitals and tertiary care centers, MRSA is now endemic in nursing homes, long-term-care facilities, and even community hospitals (Sheff, 1998: 41)

(7) Title: "The Return of the Radial Artery in CABG"
Abstract: *After falling out of favor, the radial artery is making a comeback as the graft of choice in CABG procedures.*

Arterial revascularization through coronary artery bypass grafting (CABG) has stood the test of time (Reger and Vargas, 1999)

Notice that example (7) includes the acronym both in the title and in the abstract, thus violating rule 2, but gives the base of the acronym the first time it is mentioned in the text, thus complying with rule 3. The question of including or not including acronyms in titles is addressed by Huth (1992: 147) in his manual of style. He says that this norm is increasingly being ignored because there are many electronic databases which include lists of titles, and the users of these databases expect to find the articles they are interested in by introducing acronymic terms. A further reason mentioned by Huth is that many editors of specialized journals would reject titles that included such long terms as the ones we have seen in the examples[3]. Then, the main reason for not including acronyms in titles is clarity, and the main reason for including them is conciseness and adaptation to the new information technologies.

Additionally, the questions of lexicalization and frequency of use are also relevant here. Thus, in example (8) below, we have an acronym in the title and the abstract ('NICU') which is explained the first time it appears in the text. A possible explanation for this may be that the author considers the acronym 'NICU' to be sufficiently well-known so as not to include its base Noun Phrase either in the title or the abstract, as opposed to the expression 'peripherally inserted central catheters', which appears in full in both the title and the abstract. Again, this subjective appreciation causes the majority of violations of both rule 2 and rule 3, as we will see below.

(8) Title: "Minimizing Risks Associated with Peripherally Inserted Central Catheters in the NICU"

Abstract: *Peripherally inserted central catheters (PICC lines) provide prolonged venous access, (...) Although there are many benefits to the use of these catheters, physicians and nurses within the NICU must remain acutely aware of the risks involved with placement of PICC lines (...).*

[3] In fact, the "Uniform Requirements" (International Committee of Medical Journal Editors, 1997: 5) state that titles "should be concise but informative".

Peripherally inserted central catheters (PICC lines) have become increasingly popular in Neonatal Intensive Care Units (NICUs) (Camara, 2001)

The third rule for the use of acronyms is that the full term for which an acronym stands should precede its first use in the text. However, we have already seen many examples where acronyms are left unexplained, at such salient parts of the text as the title and the abstract. The same happens in the body of the text. Here, there is a connection to rule 1, that states that only standard abbreviations (acronyms) can be used. The question, again, is that what an author perceives to be a standard, well-known and accepted acronym, may not be considered as such by another author. Thus, in examples (9) and (10), the same acronym ('FDA') is used, but whereas it is explained in the first text, it is left unexplained in the second one.

(9) According to the Food and Drug Administration (FDA), complications develop in approximately 2% to 4% of NSAID users each year.
Using conservative estimates of the FDA-determined risk factors for NSAID-induced ulceration, the cost of prophylaxis proved to be an additional $650 for each GI event that was prevented (Peloso, 2000)

(10) One intravenous agent, ibutilide (class III), has received FDA approval; it has a rapid onset of action and, when effective, quickly terminates an AF episode (Bubien, 2000)

Finally, there is another rule for acronym usage that is not included in the list provided by the "Uniform Requirements", but that is mentioned in most manuals of style. It is that authors must not use an acronym for a term that appears only once in the text. Thus, in the article from which example (11) is extracted, the expression 'percutaneous transluminal coronary angioplasty' is used only once, so it is not turned into an acronym, whereas in example (12) it appears on several occasions, so the acronym 'PTCA' is used after the first mention:

(11) Risk of coronary heart disease (CHD) events after coronary artery bypass graft (CABG) procedures, including mortality myocardial infarctions (MI), graft occlusion or narrowing, and repeat CABG or percutaneous transluminal coronary

angioplasty, is reported to be higher in patients with diabetes than in other patients (Reger and Vargas, 1999)

(12) Percutaneous transluminal coronary angioplasty (PTCA), with or without stent insertion, is typically used in patients with single- or double-vessel disease (...). To reduce the 25% to 30% risk of restenosis, physicians at the facility where I work routinely place a stent in patients having PTCA (Newton, 1998: 60)

But, again, we can also find many texts in which an acronym abbreviates a term that is mentioned just on one occasion, as in example (13), where an acronym is provided for a term ('electrocardiogram') that is used only once throughout the article:

(13) However, the impulse takes longer than usual to pass through the AV node, so a prolonged PR interval appears on the electrocardiogram (ECG) (Miracle and Sims, 1998: 56)

6. Conclusions

The analysis of the different examples provides strong evidence for our starting assumption, i.e. that profuse use of acronyms is a defining feature of nursing style. Then, the most relevant conclusion that can be derived from this fact is that, for speakers of nursing English to develop communicative competence, they must possess a shared knowledge of two crucial aspects regarding acronyms, namely:

1.- The rules that govern acronym formation, and when and how these rules can be violated.

2.- The rules that govern acronym usage, and when and how these rules can be violated.

However, as the examples also prove, these conditions vary greatly depending on such elusive factors as editorial policies, authors' subjective appreciations, etc. Consequently, a deeper research into scientific acronyms is needed, so as to reach the highest possible level of standardization of these widely-used terms.

The examples have been taken from the following sources:

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(13) Miracle, V. and Sims, J.M. 1998. "Atrioventricular Blocks". *Nursing98* June: 56-57.

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